

# VIRGINIA DEPARTMENT OF HEALTH

## OFFICE OF THE CHIEF MEDICAL EXAMINER

*“To promote and protect the health of all Virginians”*

# Fatal Drug Overdose Quarterly Report

## 4<sup>TH</sup> QUARTER 2018

**Edition 2018.4**

Publication Date:  
April 2019

# METHODS, CONSIDERATIONS, AND LIMITATIONS

This quarterly report contains the most recent number of drug related deaths in Virginia for the previous quarter. **The numbers represented in this report are preliminary, subject to change, and are most likely slightly under reported at the time of publication** due to operational practices and limitations (specifically case turnaround time for reports) within the agency; therefore updates and/or changes to numbers previously published in past reports should be expected. It is highly recommended that when citing these data and reports, the edition number is included.

Data analyzed in the report is obtained from the Virginia Medical Examiner Database System (VMEDS). VMEDS is an internal agency database which contains detailed information on all deaths reported to the OCME. Data presented in this report is based upon accepted cases of either full autopsy or external exams. All manners of fatal drug overdoses (accident, homicide, suicide, and undermined) are included in this report.

Due to the nature of law enforcement and OCME death investigation, all deaths presented in this report are based upon locality of occurrence and not residential status of the decedent. The numbers and rates of these death by locality of injury and drug name/drug category are available in separate documents (<http://www.vdh.virginia.gov/medical-examiner/forensic-epidemiology/>).

This report compiles data on drugs causing or contributing to death in fatal drug overdose cases. This report does not include data on drugs detected, but not contributing or causing death.

**Often, drug-related deaths have more than one drug causing or contributing to death. Therefore, deaths in which multiple categories of drugs caused or contributed to death will be represented once within each drug category, but multiple times within the entire report. Example: a fatal cocaine, heroin, and alprazolam overdose death will be counted in the cocaine summary, the heroin summary, and the benzodiazepine summary.**

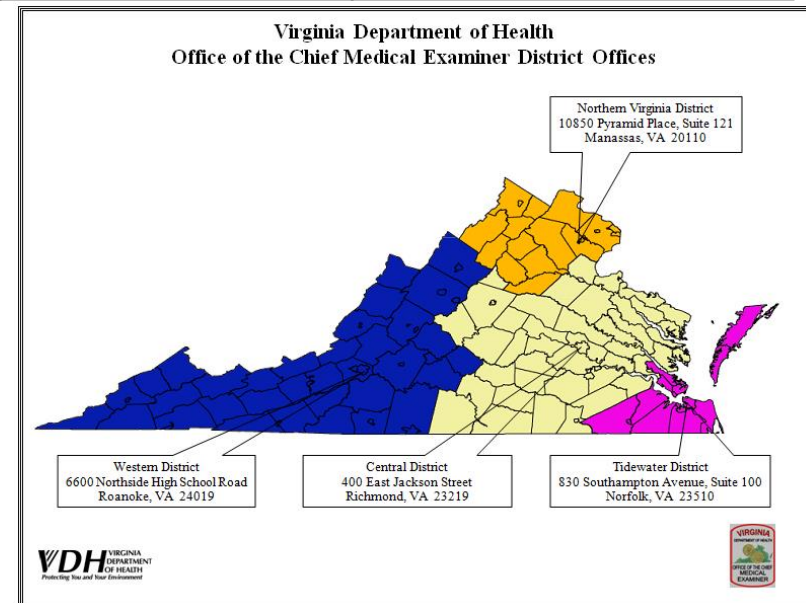
Prescription Opioids analyzed in this report include buprenorphine, codeine, hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine, oxycodone, oxymorphone, pentazocine, propoxyphene, tapentadol, and tramadol and are included in the category of 'Prescription Opioids'. Benzodiazepines analyzed in this report include alprazolam, clonazepam, diazepam, flurazepam, lorazepam, midazolam, nordiazepam, oxazepam, temazepam, and triazolam and are included in the category of 'Benzodiazepines'.

Projected estimates for 2018 (entire year) are calculated based upon initial counts by quarter, average toxicology turnaround time at the time of the report, the date of data analysis, and previous quarter fatality trend review.

Rate calculations are based upon Virginia population projections. These population estimates came from the Virginia Department of Health, Division of Health Statistics (<http://www.vdh.virginia.gov/HealthStats/stats.htm>).

Quarters are based upon calendar year and are defined as follows:

- Quarter 1 (Q1)- January 1<sup>st</sup> - March 31<sup>st</sup>
- Quarter 2 (Q2)- April 1<sup>st</sup> - June 30<sup>th</sup>
- Quarter 3 (Q3)- July 1<sup>st</sup> - September 31<sup>st</sup>
- Quarter 4 (Q4)- October 1<sup>st</sup> - December 31<sup>st</sup>



# MAIN TAKEAWAYS

- Fatal drug overdose has been the leading method of unnatural death in Virginia since 2013
- Opioids have been the driving force behind the large increases in fatal overdoses since 2013
- In 2015 statewide, the number of illicit opioids deaths surpassed prescription (Rx) opioid deaths. This trend continued at a greater magnitude in 2016, 2017, and 2018
- There has not been a significant increase or decrease in fatal prescription (Rx) opioid overdoses over the 12 year time span (2007-2018)
- Fentanyl (prescription, illicit, and analogs) caused or contributed to death in nearly 55% of fatal overdoses in 2018
- For the first time since 2012, the number of fatal overdoses actually decreased from the previous year (3.4% decrease in 2018 compared to 2017)
- Fatal non-opioid overdoses are on the rise. In 2018 compared to 2017, fatal cocaine overdoses increased 11.5% and fatal methamphetamine overdoses increased 44.3%

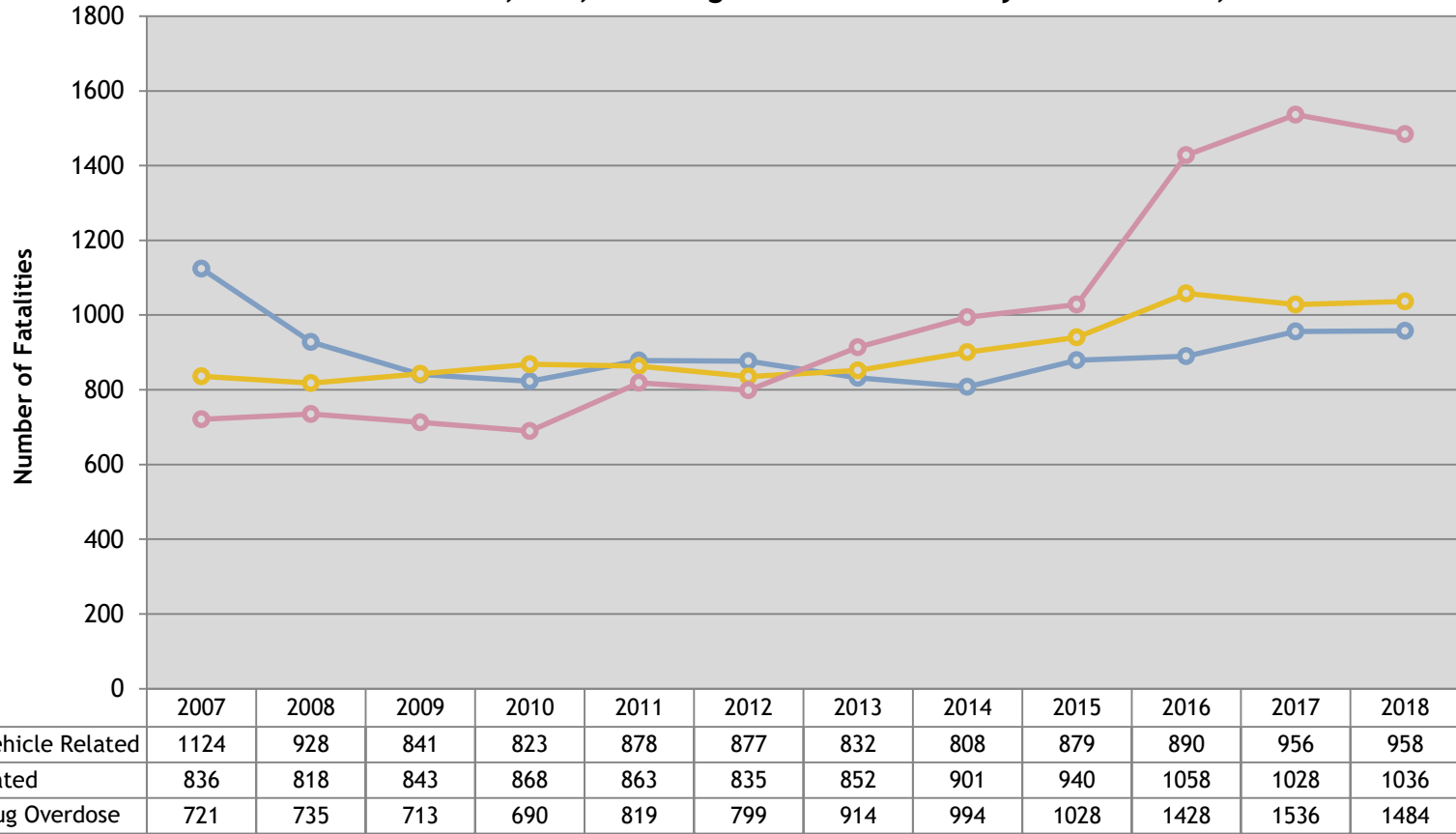
## **Data for 2018 is Not Final**

At the time of this analysis, approximately 30 cases from 2018 remained open, awaiting additional reports to certify cause and manner of death. These remaining cases may or may not be fatal drug overdoses and are not represented in this analysis. Therefore, numbers for 2018 are preliminary and subject to change.

# TOP 3 METHODS OF UNNATURAL DEATH

The leading methods of unnatural death in Virginia since 2007 have been motor vehicle collisions, gun-related deaths, and fatal drug overdoses (these methods of death include all manners of death: accident, homicide, suicide, and undetermined). In 2013, fatal drug overdose became the leading method of unnatural death in the Commonwealth. This trend has continued to worsen at a greater magnitude due mainly to illicit opioids (heroin, illicit fentanyl, and fentanyl analogs).

**Total Number of Motor Vehicle, Gun, and Drug Related Fatalities by Year of Death, 2007-2018**

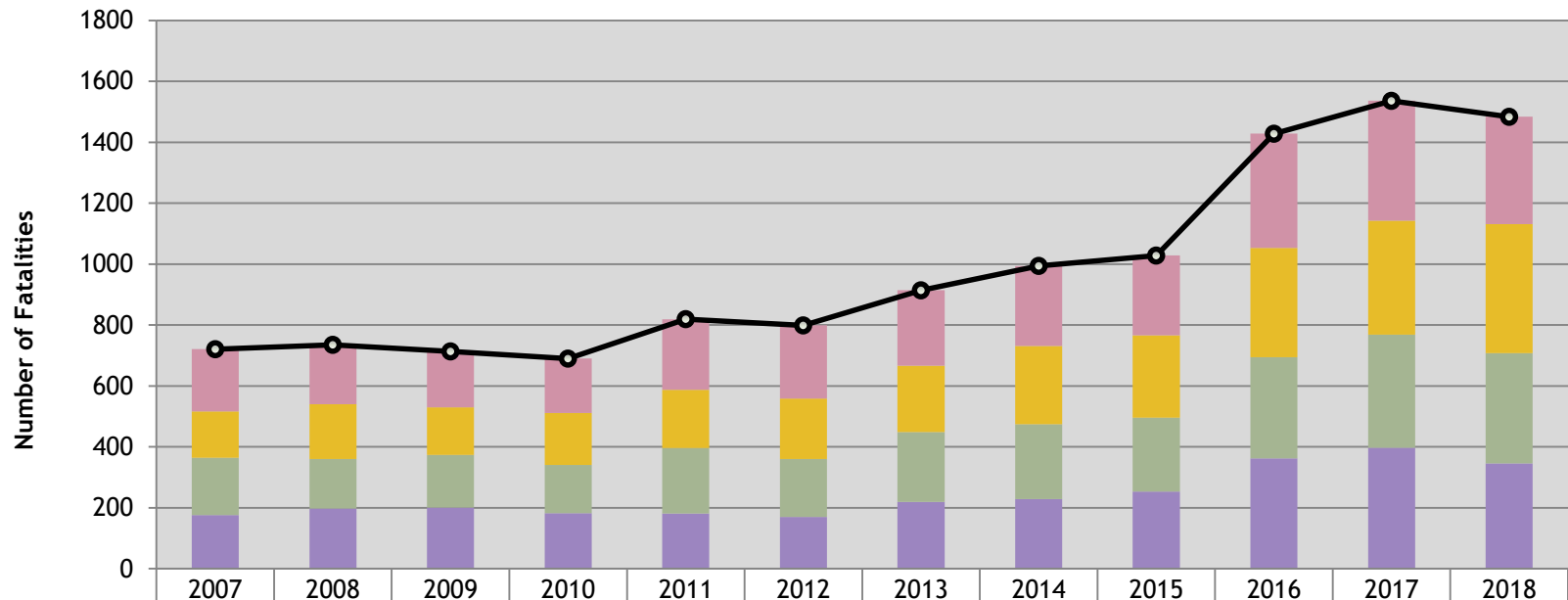


<sup>1</sup> Top 3 methods of death (motor vehicles, guns, and drugs) include all manners of death (accident, homicide, suicide, and undetermined)

# ALL DRUGS

The total number of fatal drug overdoses statewide has increased each year. In 2013, fatal drug overdose became the number one method of unnatural death in the Commonwealth, surpassing both motor vehicle-related fatalities and gun-related fatalities. In 2014, fatal drug overdose became the leading cause of accidental death in Virginia. The number of all fatal overdoses in 2016 compared to 2015 increased by 38.9%---a record setting statistic. For the first time since 2012, the number of fatal overdoses actually decreased from the previous year (3.4% decrease in 2018 compared to 2017).

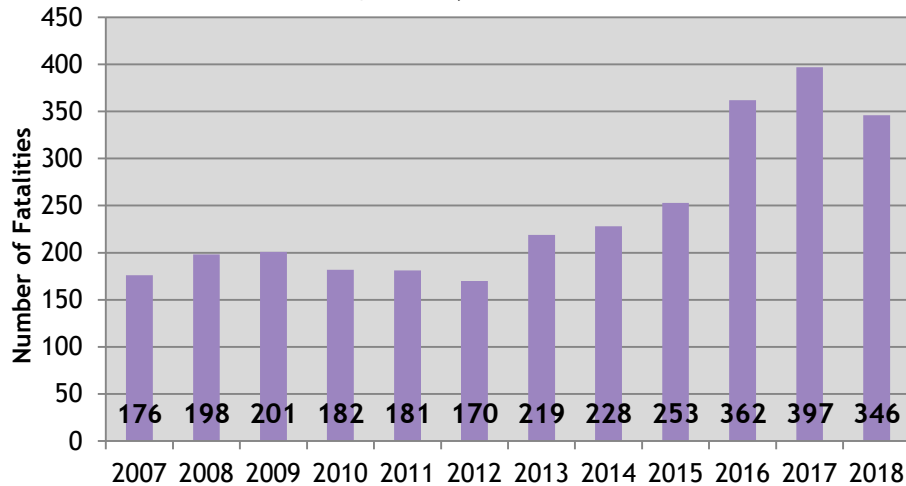
**Total Number of Fatal Drug Overdoses by Quarter and Year of Death, 2007-2018**



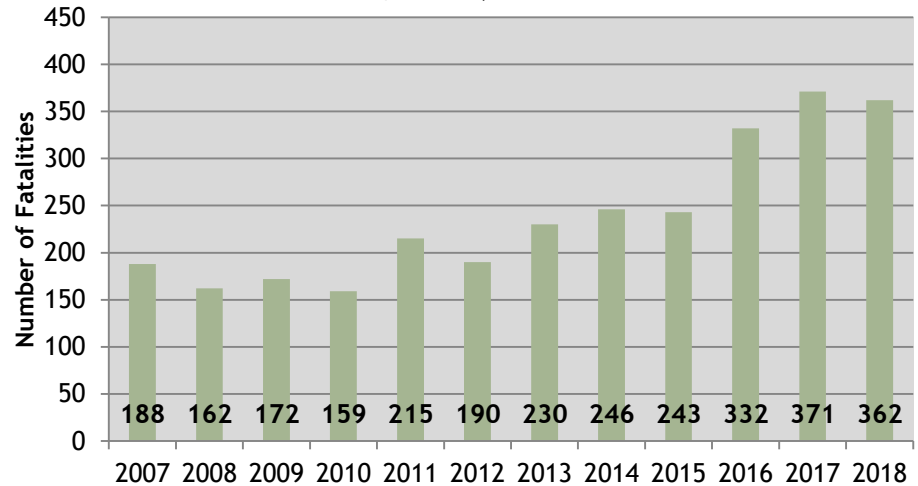
Q4	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Q3	152	180	157	170	191	199	217	257	270	359	375	423
Q2	188	162	172	159	215	190	230	246	243	332	371	362
Q1	176	198	201	182	181	170	219	228	253	362	397	346
Total Fatalities	721	735	713	690	819	799	914	994	1028	1428	1536	1484

# ALL DRUGS

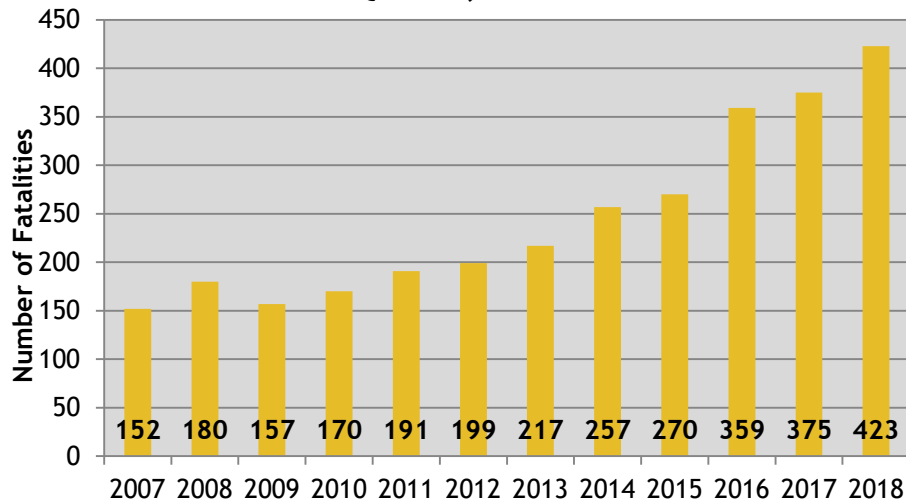
First Quarter, 2007-2018



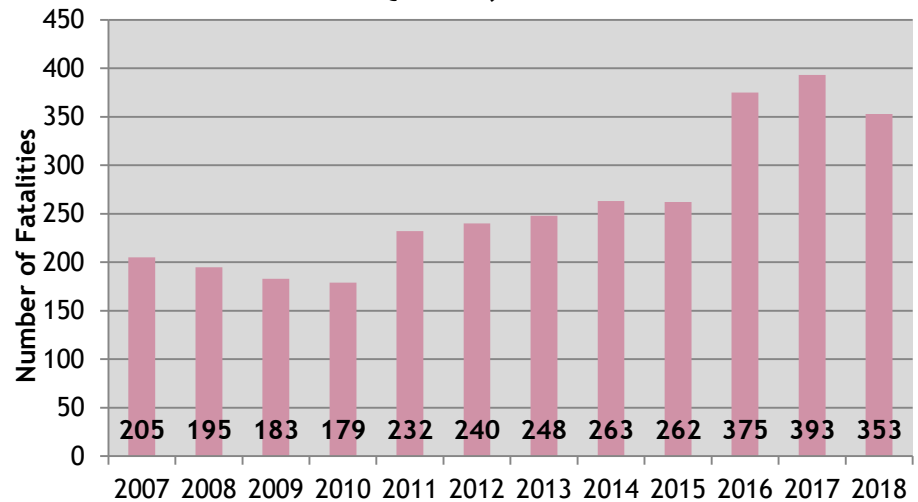
Second Quarter, 2007-2018



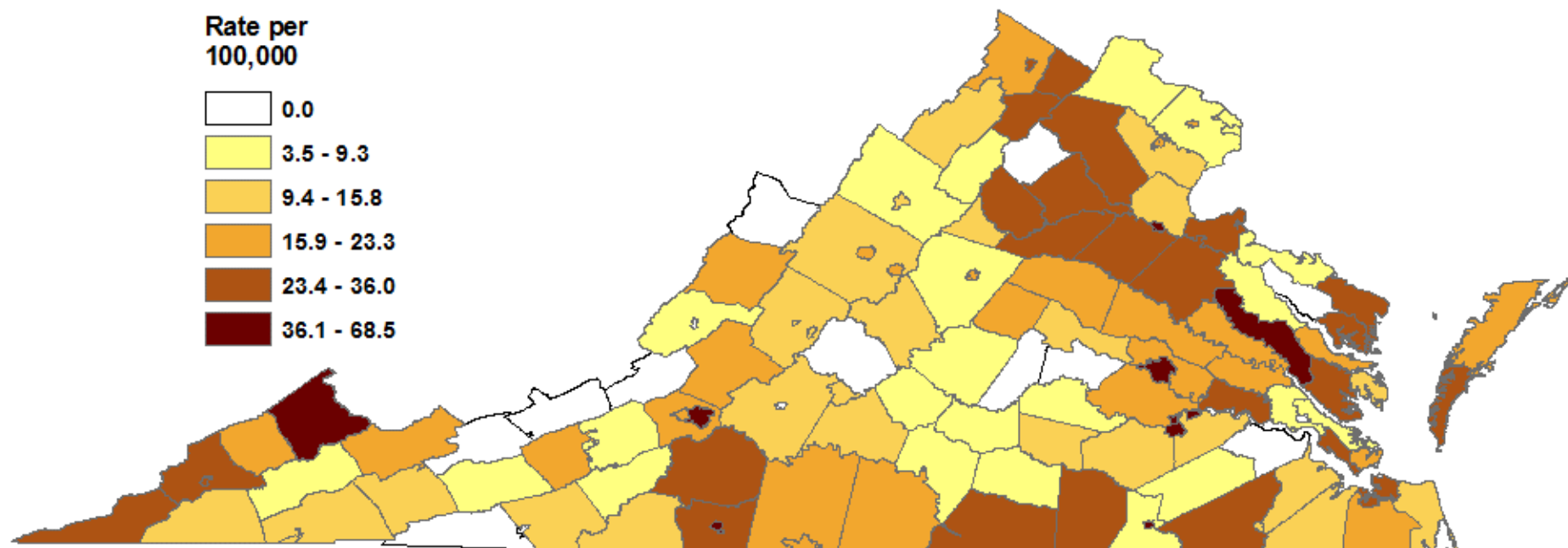
Third Quarter, 2007-2018



Fourth Quarter, 2007-2018



## Rate of All Fatal Drug Overdoses by Locality of Overdose, 2018



Source: Virginia Department of Health, Office of the Chief Medical Examiner



# FATAL DRUG OVERDOSES BY NAME/CATEGORY

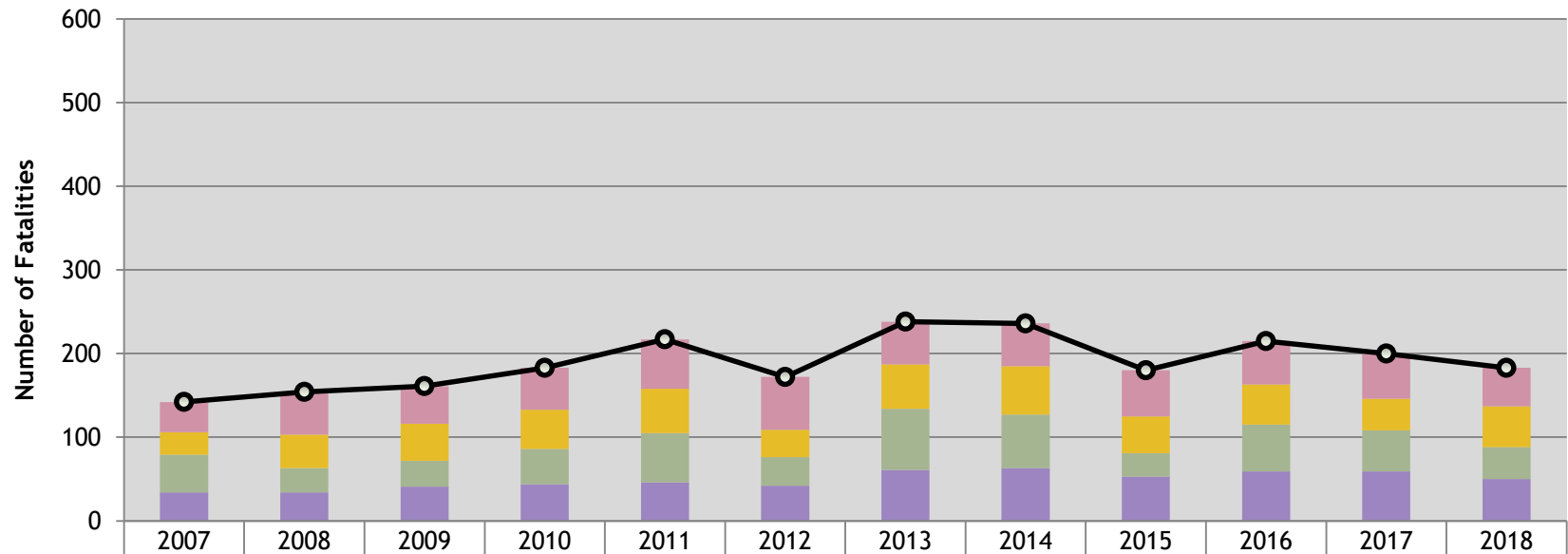


- Benzodiazepines
- Cocaine
- Fentanyl
- Heroin
- Prescription Opioids (excluding Fentanyl)

# BENZODIAZEPINES

The number of fatal benzodiazepine-related overdoses has fluctuated each year. It is very uncommon for a decedent to fatally overdose on one or more benzodiazepines alone. However, when a person ingests other substances (e.g. alcohol, opiates, methamphetamine) in addition to larger, nontherapeutic amounts of benzodiazepines, the user is potentially creating a lethal cocktail of mixed substances. Fatal benzodiazepine overdoses often had one or more prescription opioids (excluding fentanyl) causing or contributing to death; however, this proportion has slowly decreased in recent years from nearly 90% in 2007 to 66.1% in 2018.

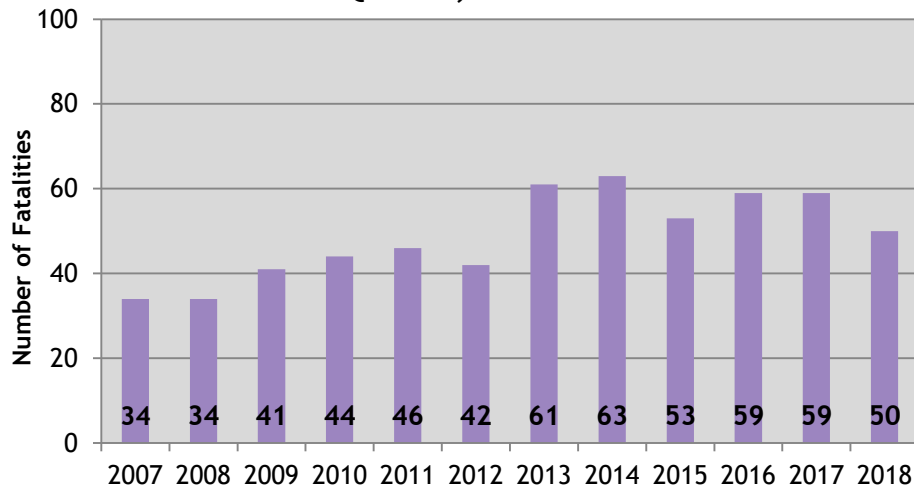
**Total Number of Fatal Benzodiazepine Overdoses by Quarter and Year of Death, 2007-2018**



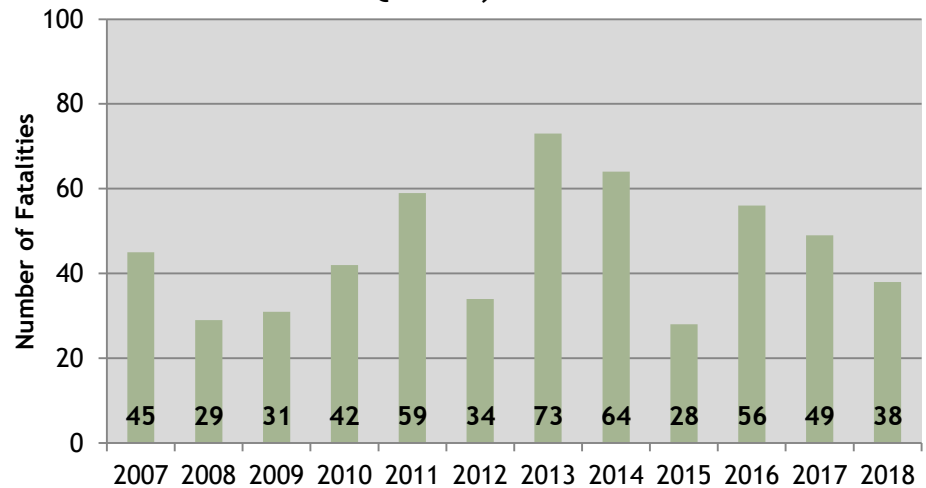
Q4	36	51	45	50	59	63	51	51	55	52	54	46
Q3	27	40	44	47	53	33	53	58	44	48	38	49
Q2	45	29	31	42	59	34	73	64	28	56	49	38
Q1	34	34	41	44	46	42	61	63	53	59	59	50
Total Fatalities	142	154	161	183	217	172	238	236	180	215	200	183

# BENZODIAZEPINES

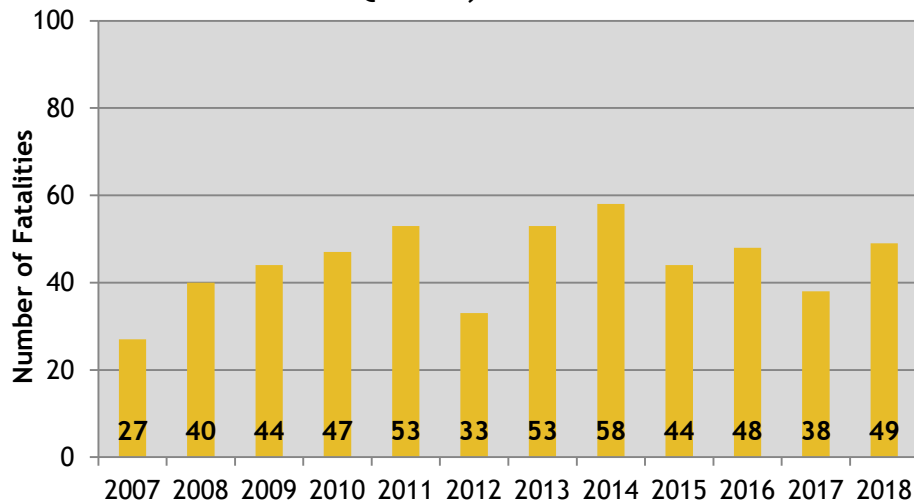
First Quarter, 2007-2018



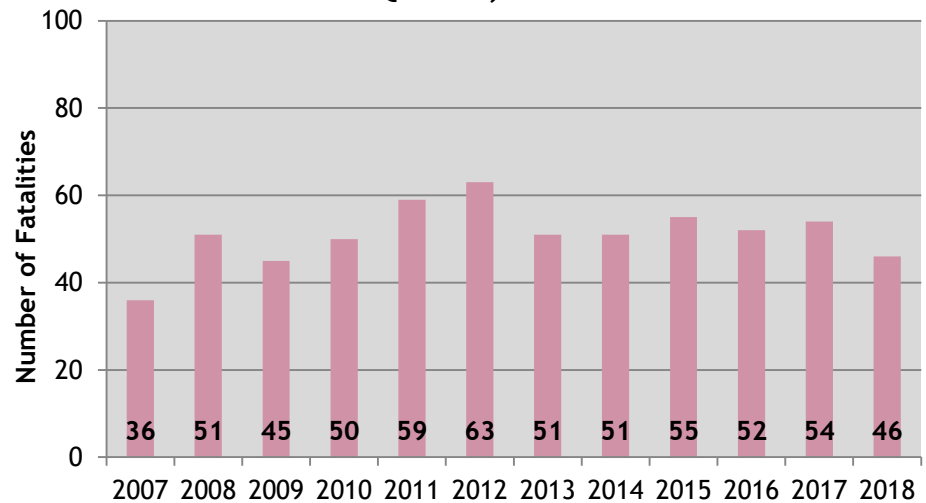
Second Quarter, 2007-2018



Third Quarter, 2007-2018

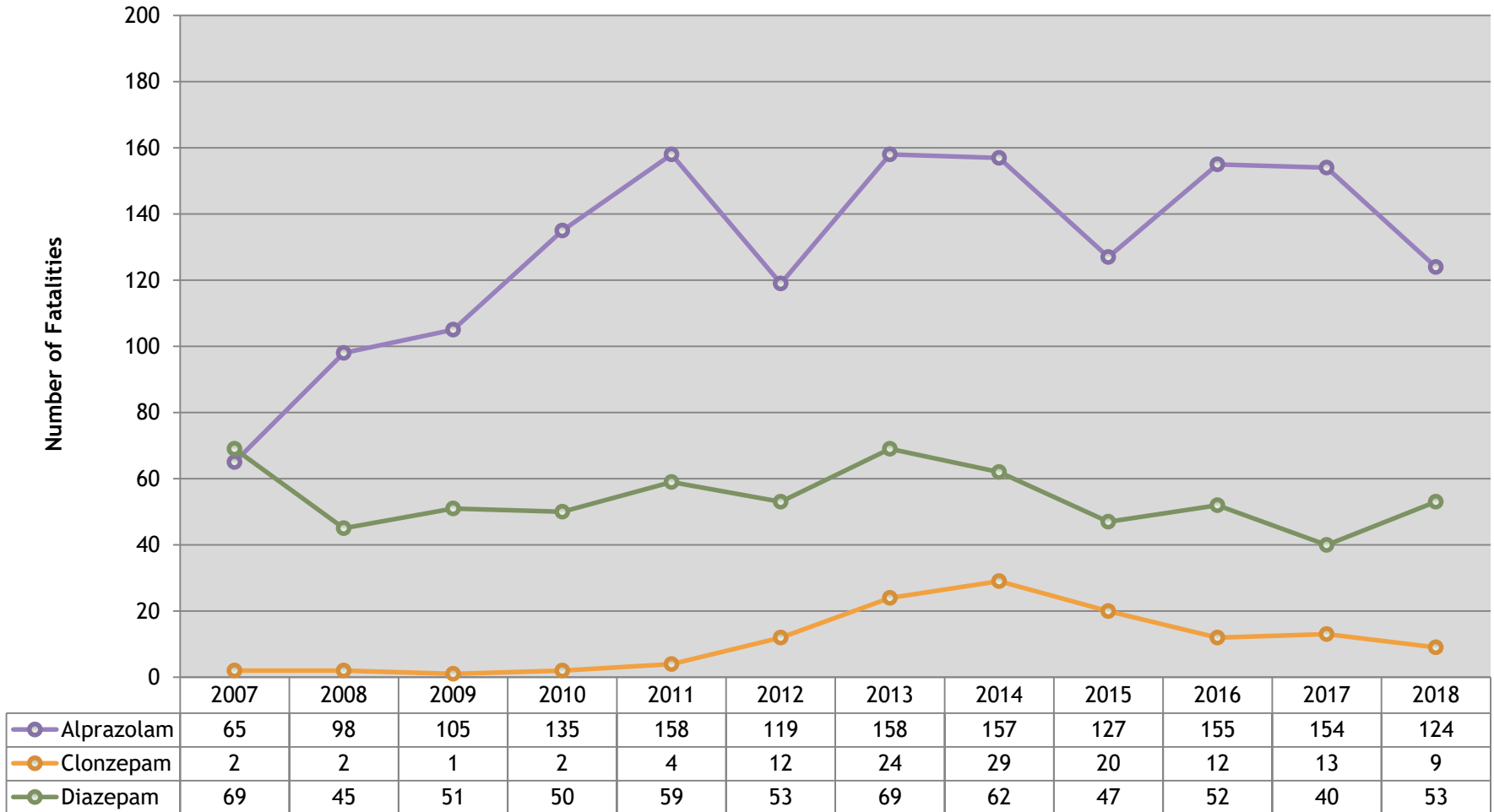


Fourth Quarter, 2007-2018



# BENZODIAZEPINES

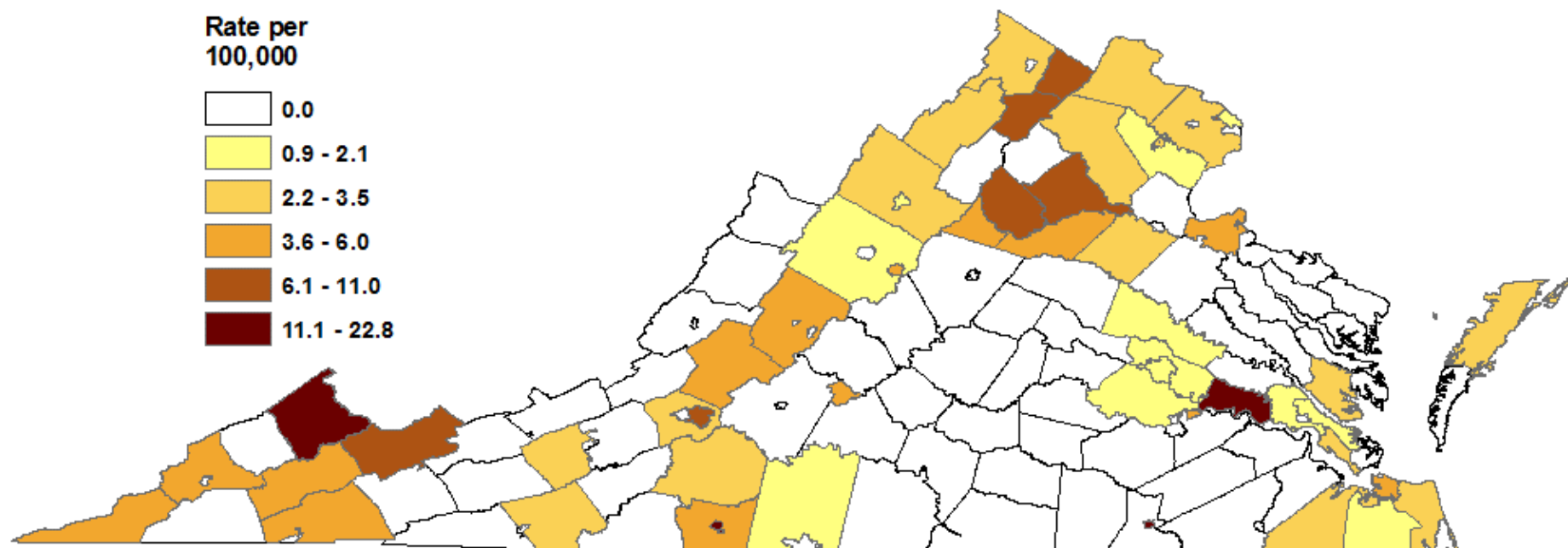
Total Number of Fatal Benzodiazepine Overdoses by Drug Name and Year of Death, 2007-2018



<sup>1</sup> Flurazepam, lorazepam, midazolam, nordiazepam, oxazepam, temazepam and triazolam were excluded from this analysis because of low annual case counts (<20 deaths per year)

<sup>2</sup> Each benzodiazepine is tallied by each time it caused or contributed to death (analyzed from either toxicology or the cause of death statement) and therefore the total number of benzodiazepines will far exceed the actual number of fatalities

### Rate of Fatal Benzodiazepine Overdoses by Locality of Overdose, 2018

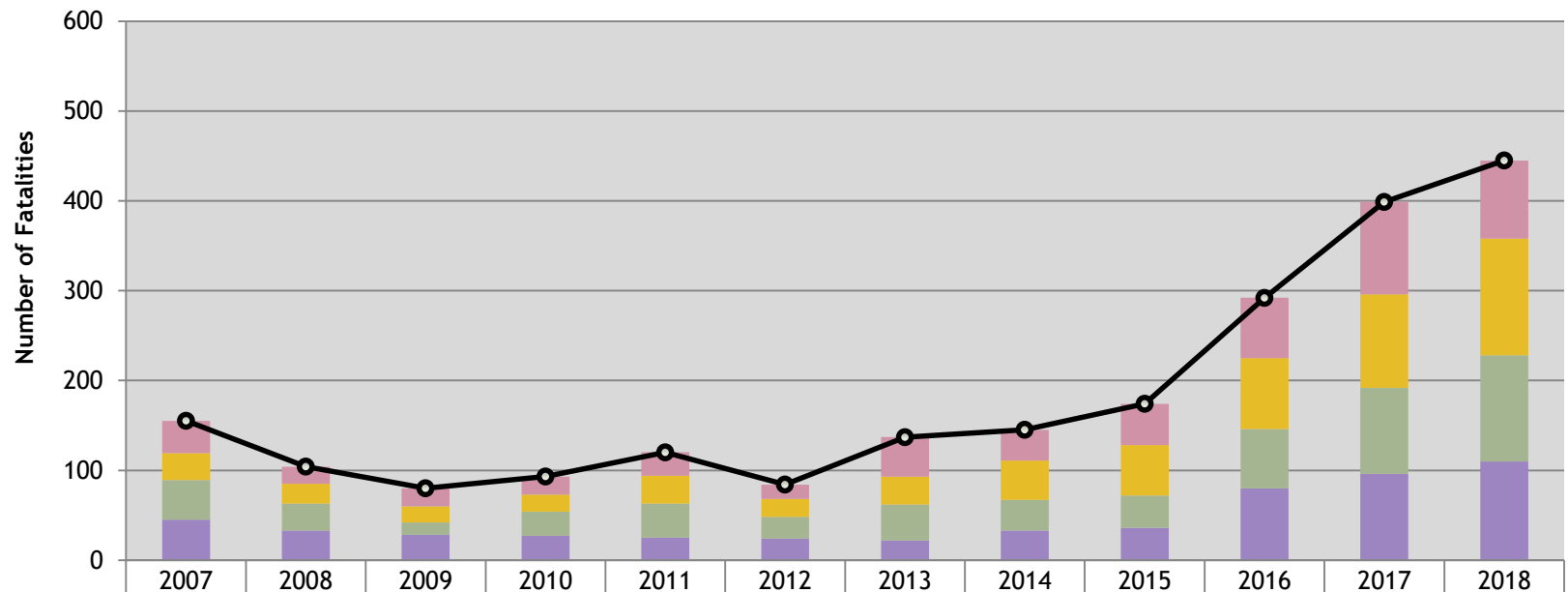


Source: Virginia Department of Health, Office of the Chief Medical Examiner

# COCAINE

The total number of fatal cocaine-related overdoses statewide has been slowly increasing since 2013. Fatal cocaine overdoses from 2007-2015 typically occurred as the only substance causing or contributing to death, or in addition to lethal combinations of one or more opioid prescription drugs (excluding fentanyl) (36.6%), heroin (24.6%), and/or alcohol at or above the legal limit of 0.08% BAC (16.0%). In 2018, over 65% of cocaine deaths also included fentanyl (prescription, illicit, or analogs). The number of fatal cocaine overdoses in 2018 compared to 2017 increased by 11.5%.

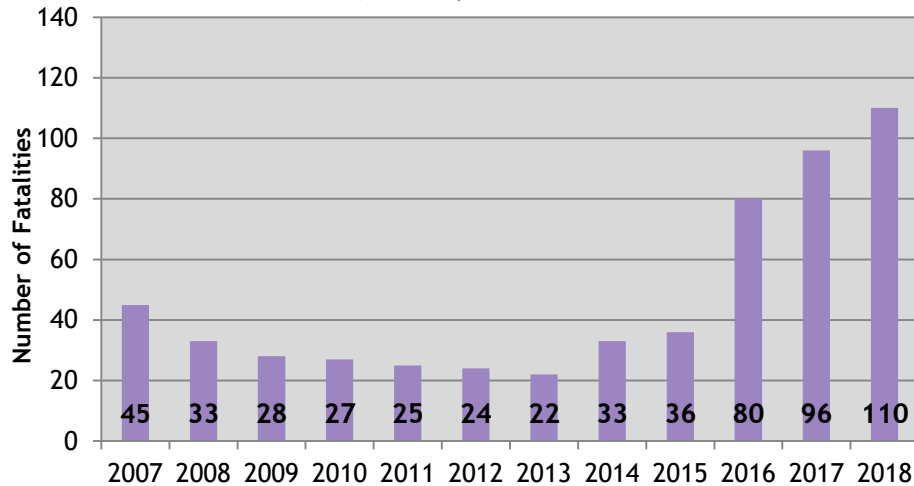
**Total Number of Fatal Cocaine Overdoses by Quarter and Year of Death, 2007-2018**



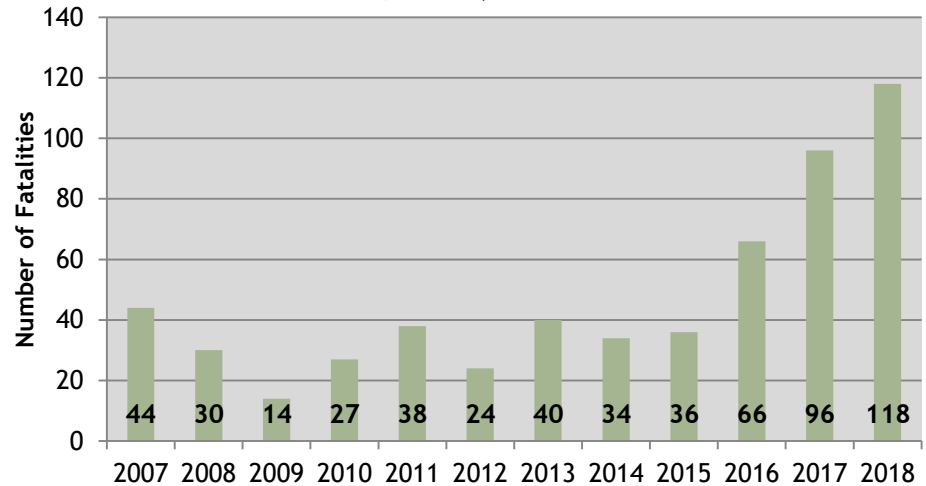
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Q4	36	19	20	20	26	16	44	34	46	67	103	87
Q3	30	22	18	19	31	20	31	44	56	79	104	130
Q2	44	30	14	27	38	24	40	34	36	66	96	118
Q1	45	33	28	27	25	24	22	33	36	80	96	110
<b>Total Fatalities</b>	<b>155</b>	<b>104</b>	<b>80</b>	<b>93</b>	<b>120</b>	<b>84</b>	<b>137</b>	<b>145</b>	<b>174</b>	<b>292</b>	<b>399</b>	<b>445</b>

# COCAINE

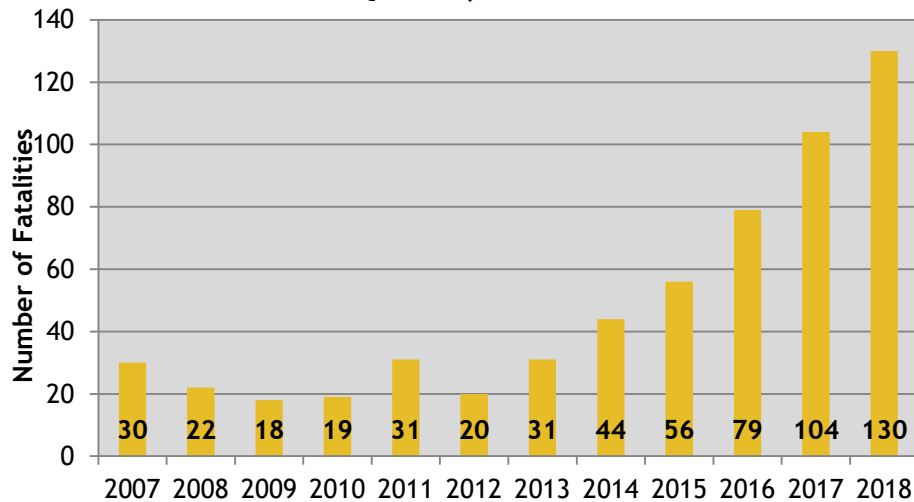
First Quarter, 2007-2018



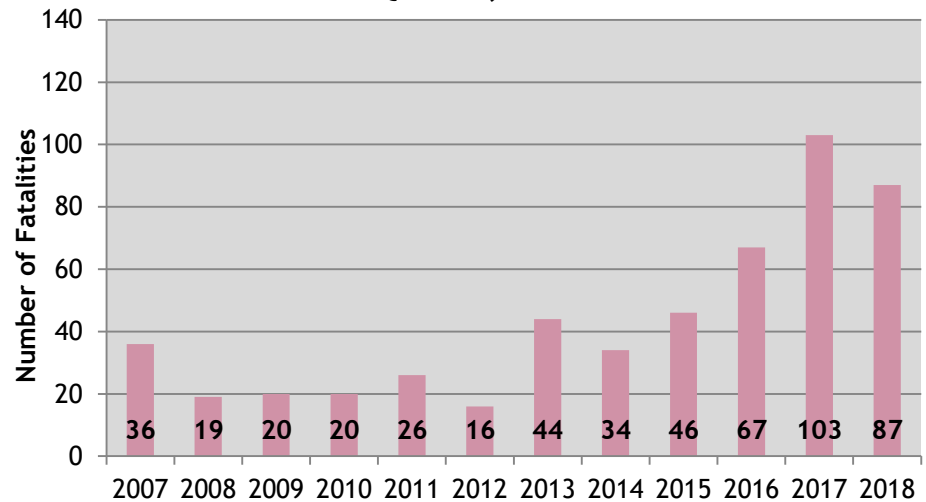
Second Quarter, 2007-2018



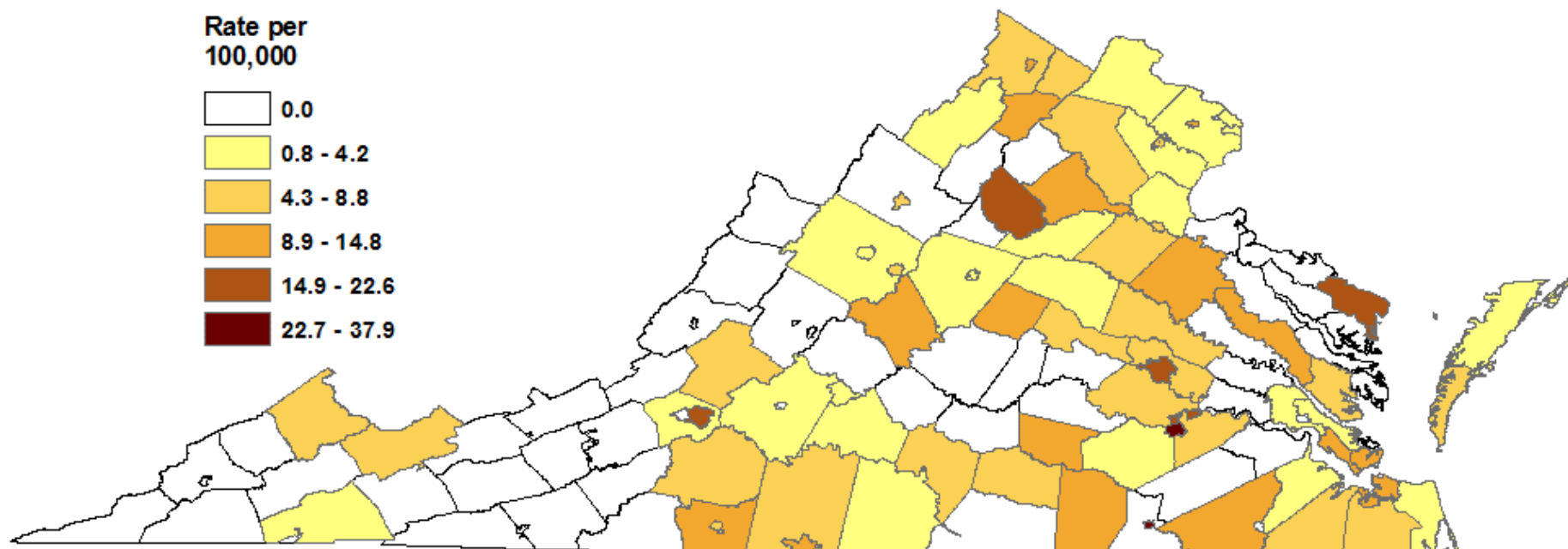
Third Quarter, 2007-2018



Fourth Quarter, 2007-2018



## Rate of Fatal Cocaine Overdoses by Locality of Overdose, 2018



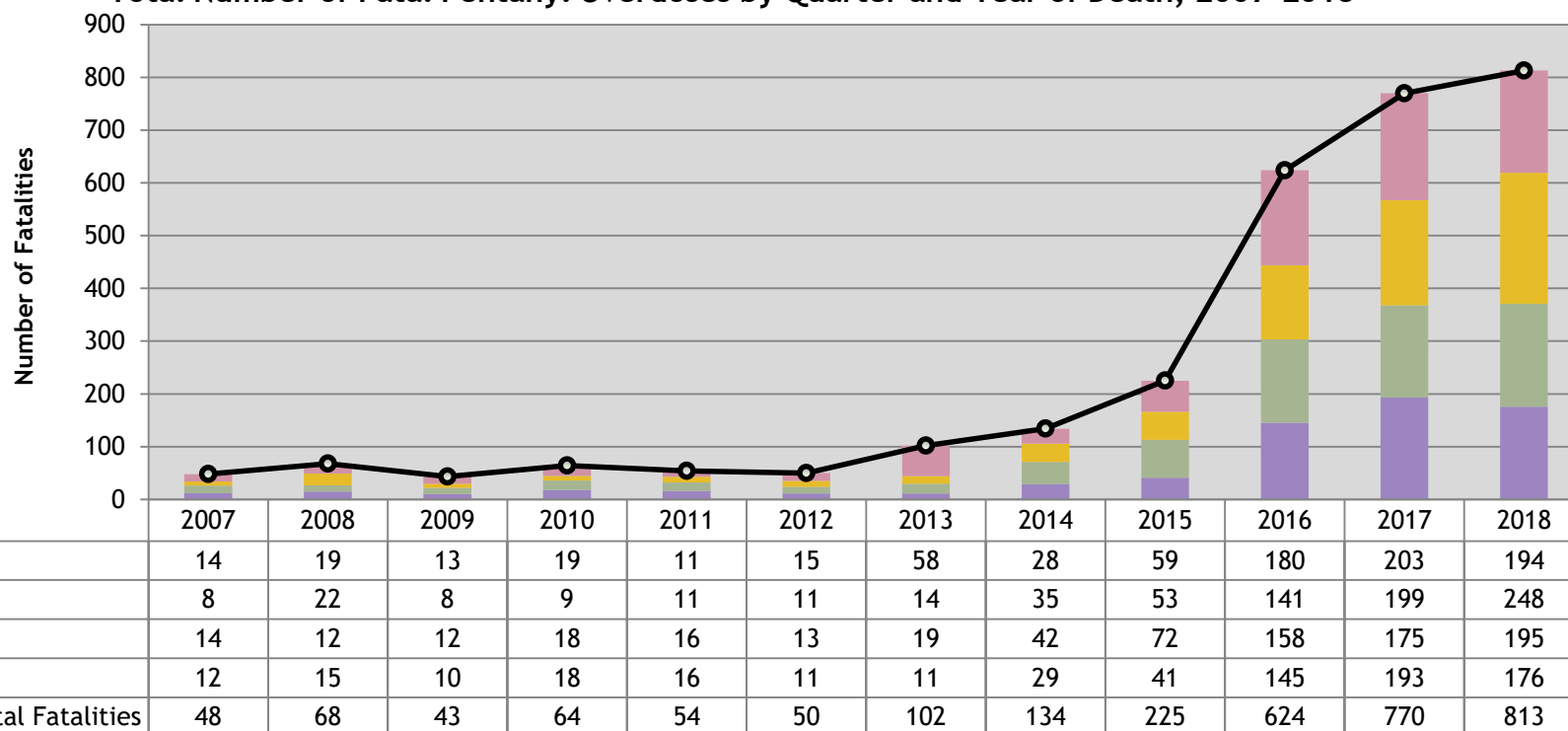
Source: Virginia Department of Health, Office of the Chief Medical Examiner



# FENTANYL

The total number of fatal fentanyl-related drug overdoses has sharply increased since 2012; which coincides with the dramatic increase in fatal heroin overdoses. Prior to 2013, most fentanyl-related deaths were due to illicit use of pharmaceutically produced fentanyl. However, in late 2013, early 2014, law enforcement investigations and toxicology testing demonstrated an increase in illicitly produced fentanyl. By 2016, most fatal fentanyl-related overdoses were due to illicitly produced fentanyl and fentanyl analogs, and not pharmaceutically produced fentanyl, with an increase of 177.3% in fentanyl deaths from 2015. For statistical purposes, 'fentanyl' includes all pharmaceutically produced fentanyl, illicitly produced fentanyl, and fentanyl analogs. The number of fatal fentanyl overdoses in 2018 compared to 2017 increased by 5.6%.

**Total Number of Fatal Fentanyl Overdoses by Quarter and Year of Death, 2007-2018**

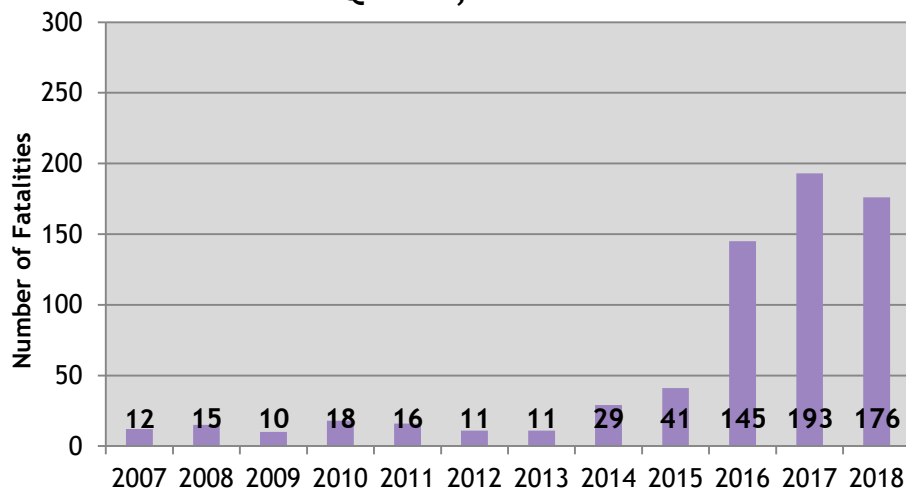


<sup>1</sup> Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, law enforcement investigations and toxicology results have demonstrated that several recent fentanyl seizures have not been pharmaceutically produced, but illicitly produced. This illicit form of fentanyl is produced by international drug traffickers who import the drug into the United States and often, mix it into heroin being sold. This illicitly produced fentanyl has been the biggest contributor to the significant increase in the number of fatal opioid overdoses in Virginia.

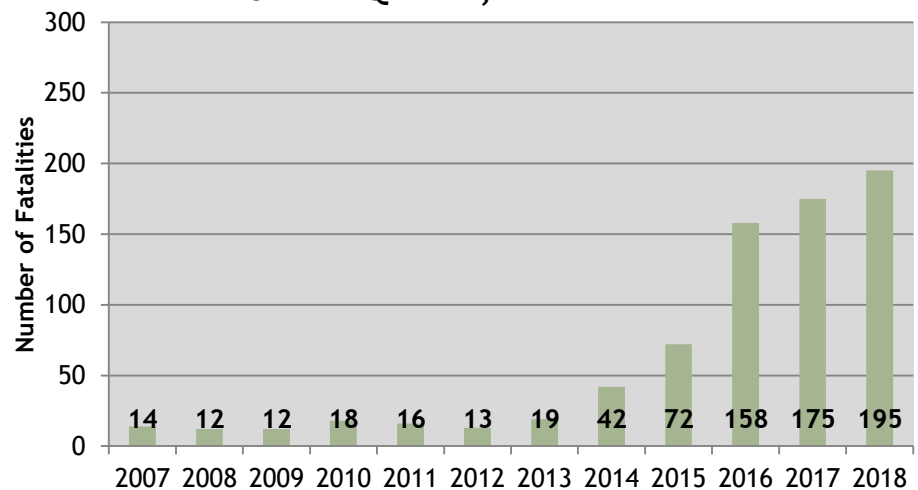
<sup>2</sup> Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

# FENTANYL

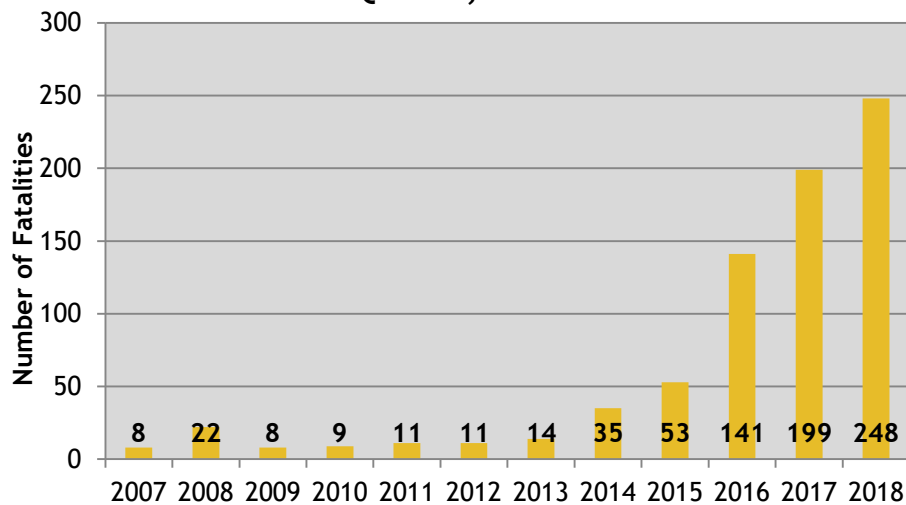
First Quarter, 2007-2018



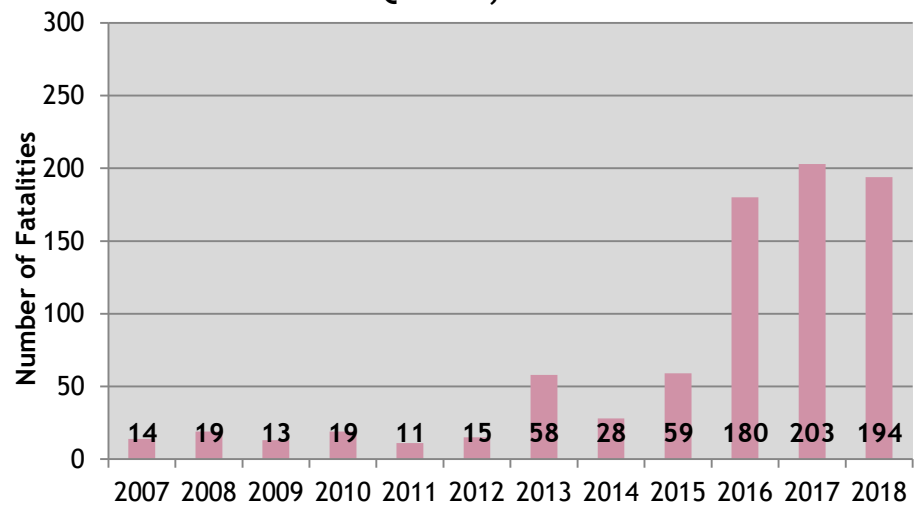
Second Quarter, 2007-2018



Third Quarter, 2007-2018



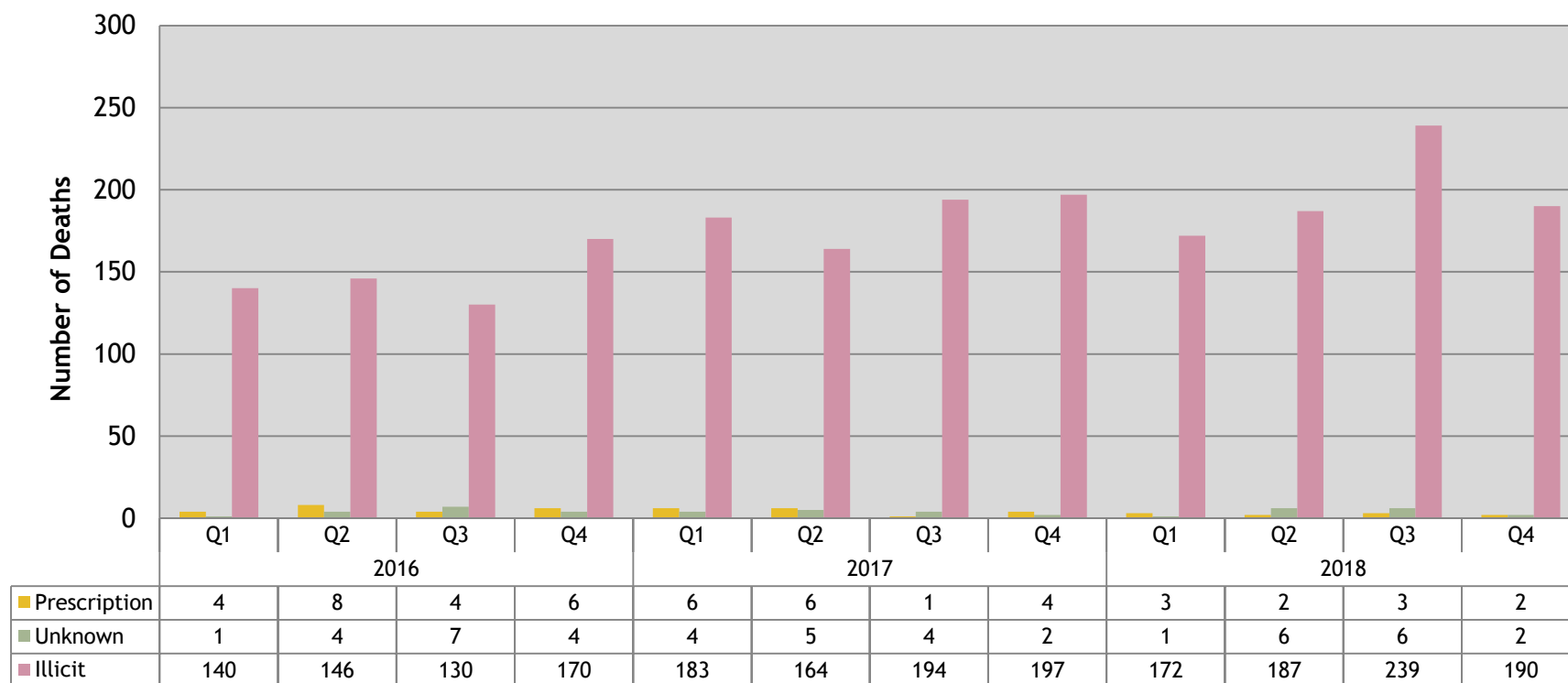
Fourth Quarter, 2007-2018



# FENTANYL

In 2016, the OCME began collecting information on the suspected origin of fentanyl (pharmaceutical production, illicit production, or unknown) on all fatal overdoses involving fentanyl. The determination is made by reviewing the examination report, toxicology report, police report, and several other sources of information collected during the death investigation process. This classification is more subjective than objective, but still provides detailed insight to the current proportion of illicitly produced fentanyl in Virginia that is contributing to fatal overdoses. In 2018, it was estimated that nearly 97% of fatal fentanyl overdoses were due to the illicitly produced versions of the drug.

**Total Number of Fatal Fentanyl Overdoses by Fentanyl Origin and Month of Death, 2016-2018**



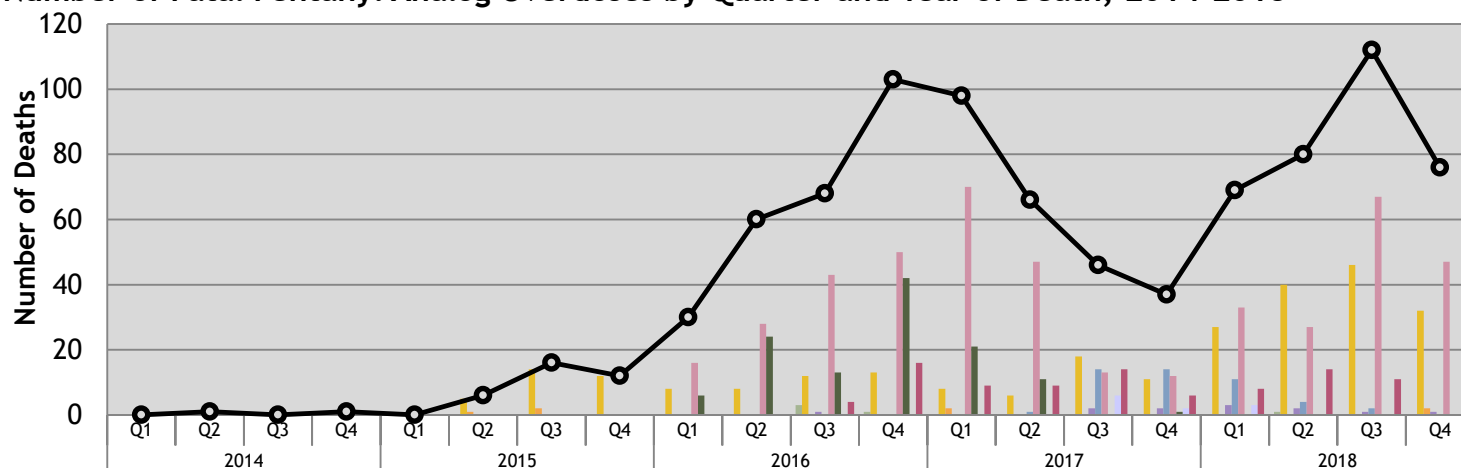
<sup>1</sup> Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, recent law enforcement investigations and toxicology results have demonstrated that several recent fentanyl seizures have not been pharmaceutically produced, but illicitly produced. This illicit form of fentanyl is produced by international drug traffickers who import the drug into the United States and often, mix it into heroin being sold. This illicitly produced fentanyl has been the biggest contributor to the significant increase in the number of fatal opioid overdoses in Virginia.

<sup>2</sup> Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

# FENTANYL ANALOGS

Fentanyl analogs are a category of illicitly produced opioids very similar to fentanyl, but slightly different in their chemical structure. Fentanyl analogs began appearing in Virginia in 2014 and have risen dramatically since the beginning of 2016. In fatal overdoses, fentanyl analogs are often found with fentanyl and/or two different fentanyl analogs together, and/or heroin or cocaine, or due to the analog itself, without other drugs detected. Fentanyl analogs are illicitly produced and are extremely potent, and can be blamed in part for the significant rise in fatal overdoses due to opioids. For statistical purposes, 'fentanyl' includes all pharmaceutically produced fentanyl, illicitly produced fentanyl, and fentanyl analogs.

**Total Number of Fatal Fentanyl Analog Overdoses by Quarter and Year of Death, 2014-2018**



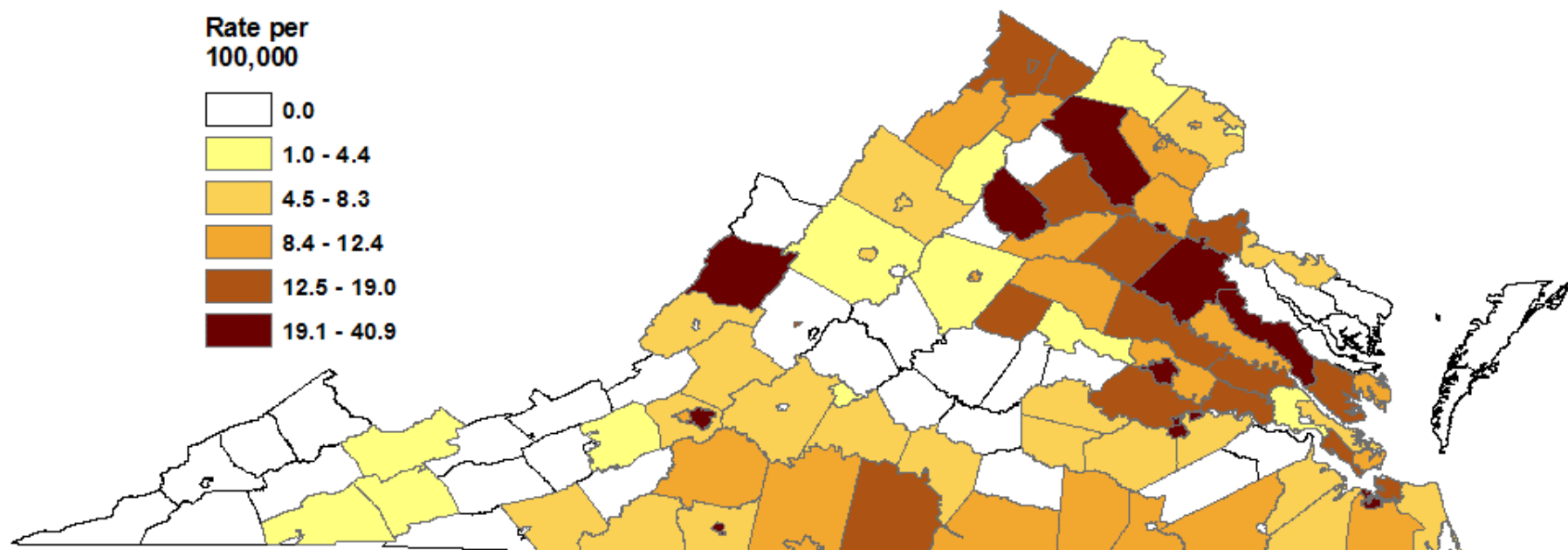
	2014				2015				2016				2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3-Methyl Fentanyl	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	1	0	0
Acetyl Fentanyl	0	1	0	1	0	5	14	12	8	8	12	13	8	6	18	11	27	40	46	32
Butyryl Fentanyl	0	0	0	0	0	1	2	0	0	0	0	0	2	0	0	0	0	0	0	2
Carfentanil	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	3	2	1	1
Cyclopropyl Fentanyl	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14	14	11	4	2	0
Despropionyl Fentanyl**	0	0	0	0	0	0	0	0	16	28	43	50	70	47	13	12	33	27	67	47
Furanyl Fentanyl	0	0	0	0	0	0	0	0	6	24	13	42	21	11	0	1	0	0	0	0
Methoxyacetyl Fentanyl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	3	0	0	0
Para-Fluoroisobutyryl Fentanyl***	0	0	0	0	0	0	0	0	0	0	4	16	9	9	14	6	8	14	11	4
Total Fentanyl Analog Fatalities	0	1	0	1	0	6	16	12	30	60	68	103	98	66	46	37	69	80	112	76

<sup>1</sup> Each fentanyl analog is tallied by each time it caused or contributed to death (analyzed from either toxicology or the cause of death statement) and therefore the total number of analogs will far exceed the actual number of fatalities

<sup>2</sup> Despropionyl fentanyl is a major metabolite of furanyl fentanyl. Therefore, numbers presented in the 'despropionyl fentanyl' category control for furanyl fentanyl (despropionyl deaths without furanyl fentanyl).

<sup>3</sup> In certain cases, specialized testing through an outside laboratory is needed for toxicology testing. In this laboratory, their testing for para-fluoroisobutyryl fentanyl and para-fluorobutyryl fentanyl cannot distinguish between the two analogs and therefore in this analysis, the two drugs are grouped together under 'para-fluoroisobutyryl fentanyl'

## Rate of Fatal Fentanyl (Rx, Illicit, and Analog) Overdoses by Locality of Overdose, 2018

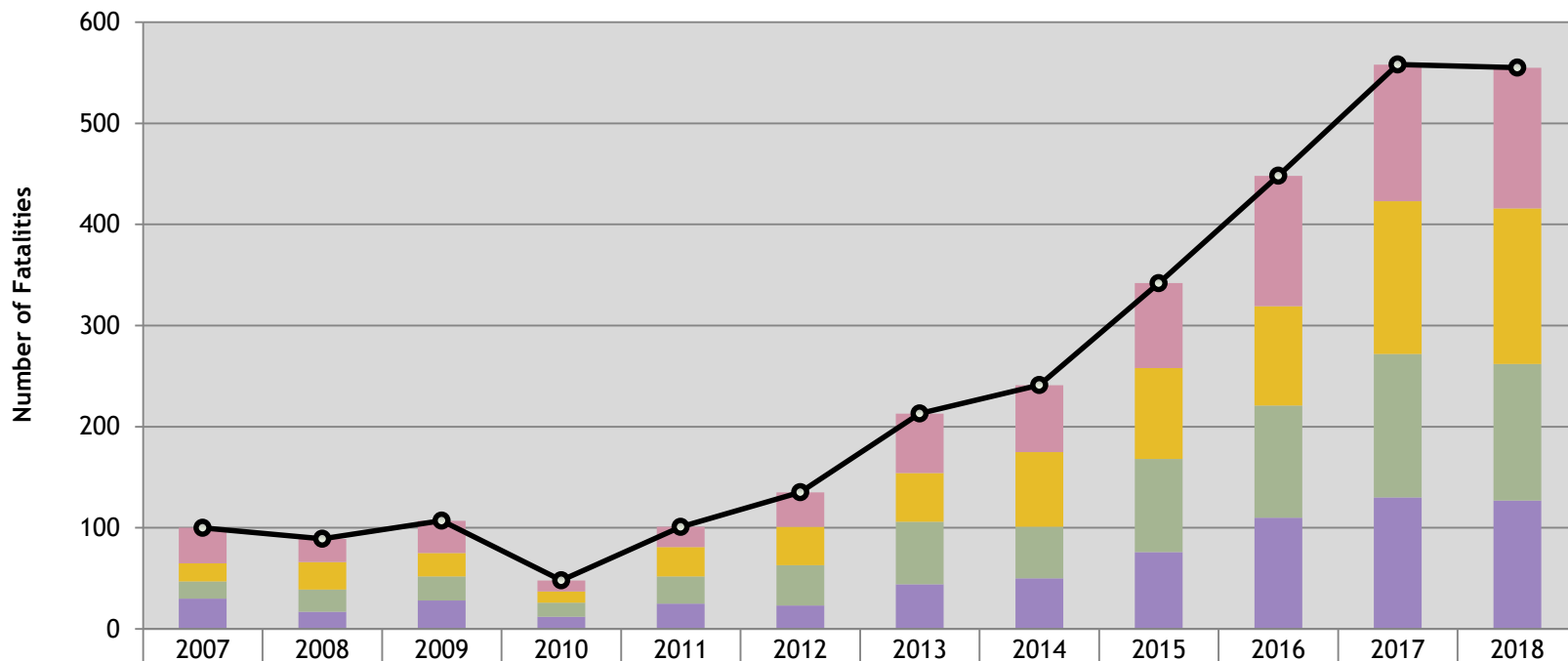


Source: Virginia Department of Health, Office of the Chief Medical Examiner

# HEROIN

The total number of fatal heroin-related overdoses have been increasing since 2010. Fatal heroin overdoses often occur as the primary drug causing death, but more recently, fentanyl and/or fentanyl analogs in addition to heroin have caused fatal overdoses. The number of fatal heroin overdoses in 2018 compared to 2017 was nearly identical.

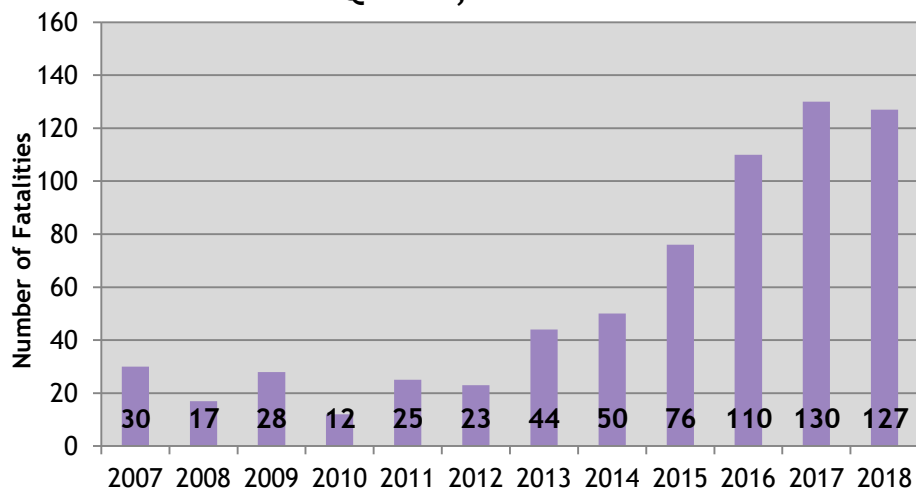
**Total Number of Fatal Heroin Overdoses by Quarter and Year of Death, 2007-2018**



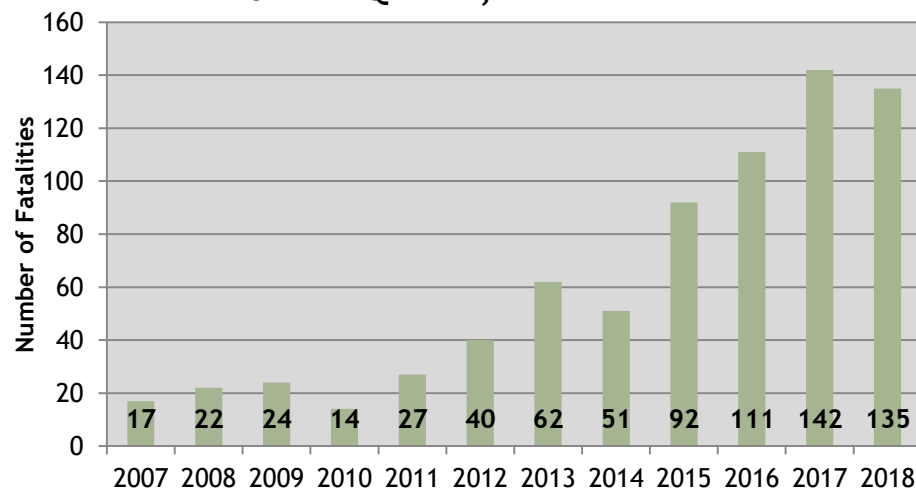
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Q4	35	23	32	11	20	34	59	66	84	129	135	139
Q3	18	27	23	11	29	38	48	74	90	98	151	154
Q2	17	22	24	14	27	40	62	51	92	111	142	135
Q1	30	17	28	12	25	23	44	50	76	110	130	127
<b>Total Fatalities</b>	<b>100</b>	<b>89</b>	<b>107</b>	<b>48</b>	<b>101</b>	<b>135</b>	<b>213</b>	<b>241</b>	<b>342</b>	<b>448</b>	<b>558</b>	<b>555</b>

# HEROIN

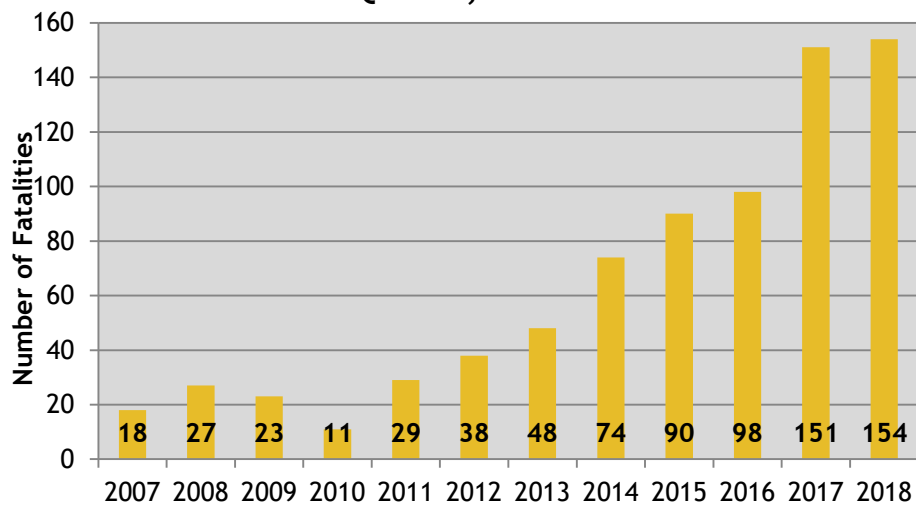
First Quarter, 2007-2018



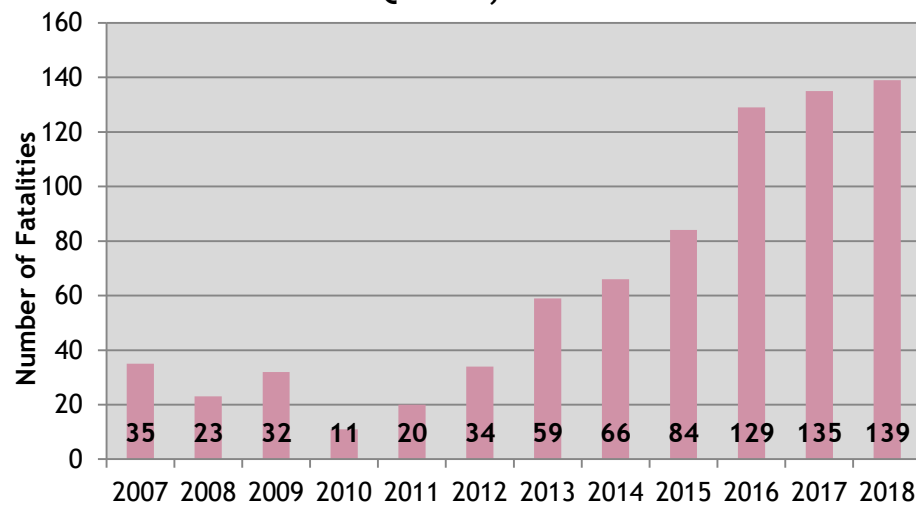
Second Quarter, 2007-2018



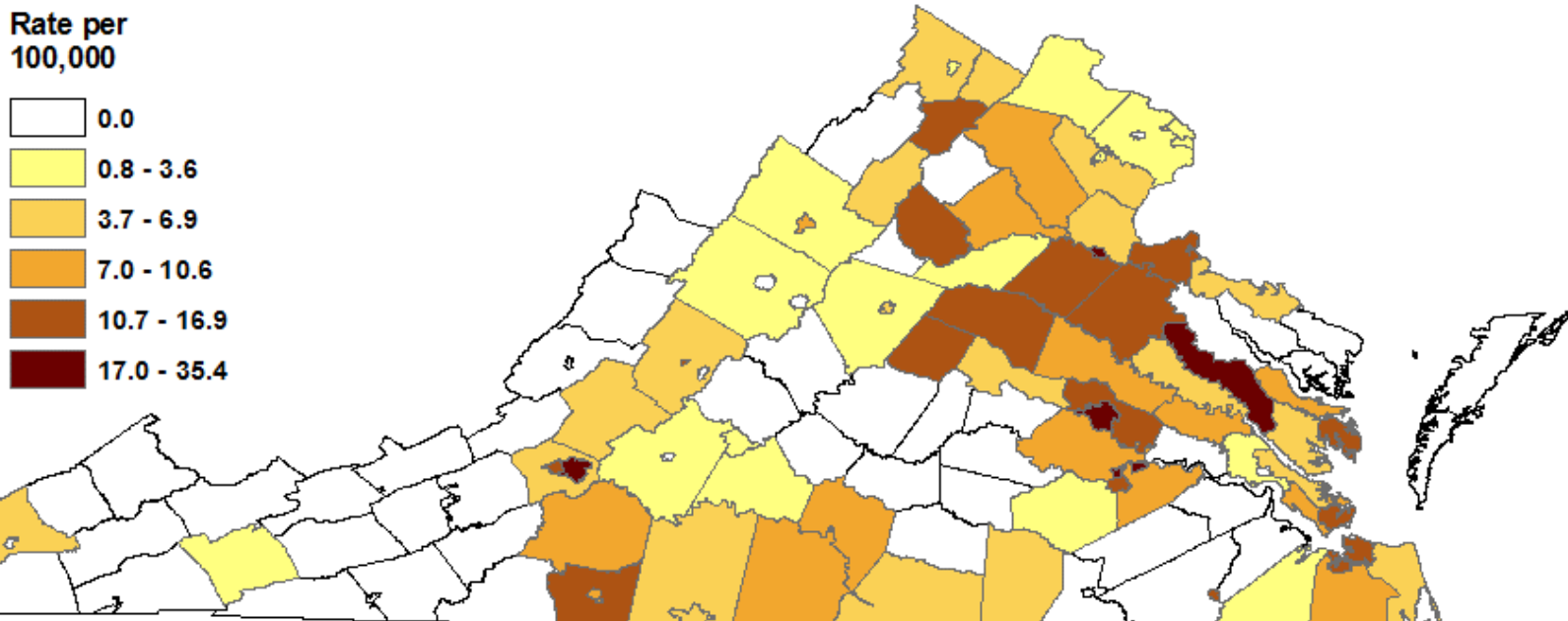
Third Quarter, 2007-2018



Fourth Quarter, 2007-2018



### Rate of Fatal Heroin Overdoses by Locality of Overdose, 2018



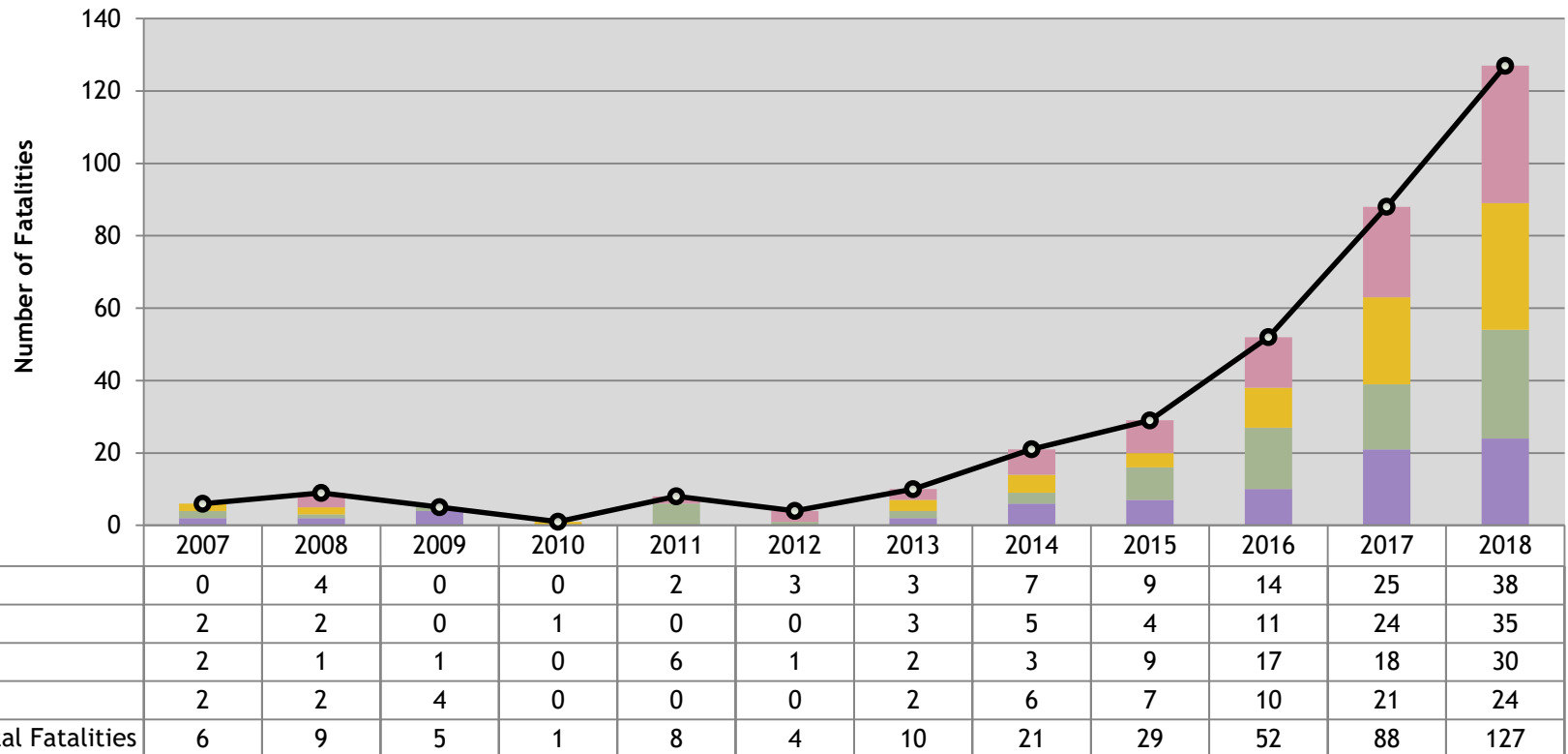
Source: Virginia Department of Health, Office of the Chief Medical Examiner



# METHAMPHETAMINE

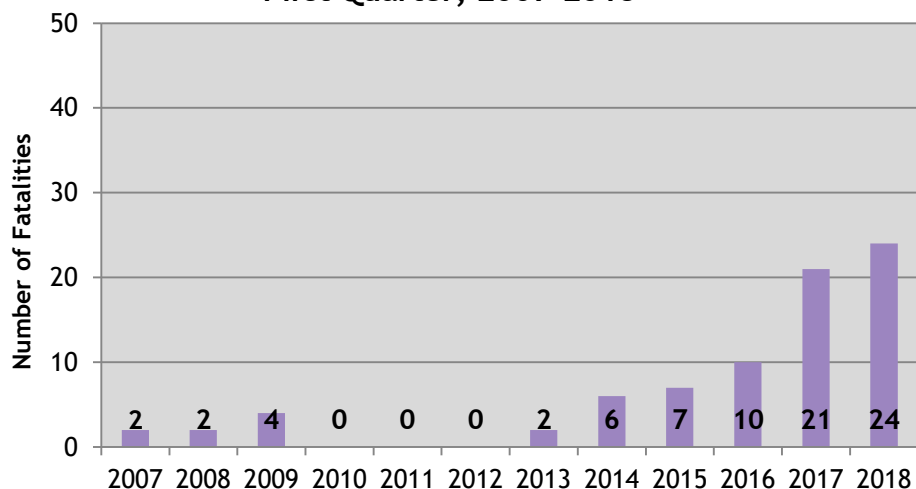
From 2007 to 2014, fatal methamphetamine overdoses were relatively uncommon compared to other drugs/drug categories, but in 2014, the number of fatal methamphetamine overdoses began to increase. In 2018, fatal methamphetamine overdoses most frequently had fentanyl (prescription, illicit, and/or analogs) (46.5%), heroin (33.9%), and/or one or more prescription opioids (excluding fentanyl) causing or contributing to death (28.3%). Fatal methamphetamine overdoses increased by 44.3% in 2018 when compared to 2017.

**Total Number of Fatal Methamphetamine Overdoses by Quarter and Year of Death, 2007-2018**

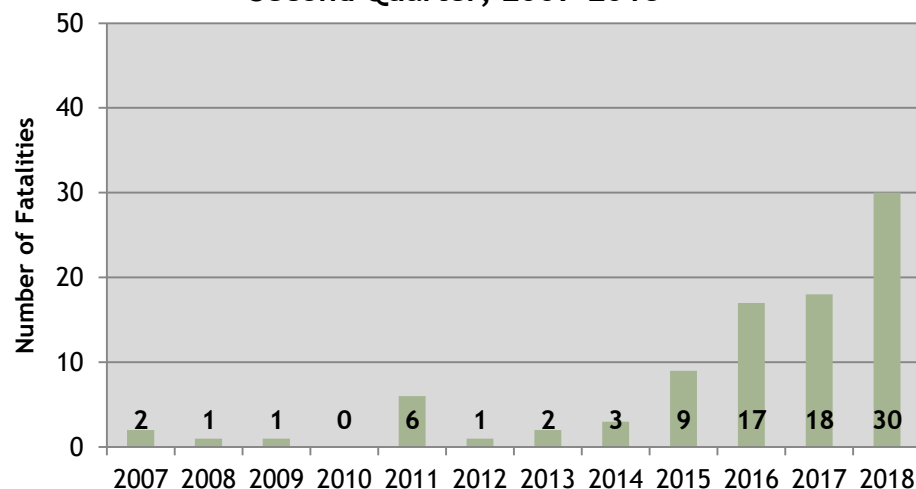


# METHAMPHETAMINE

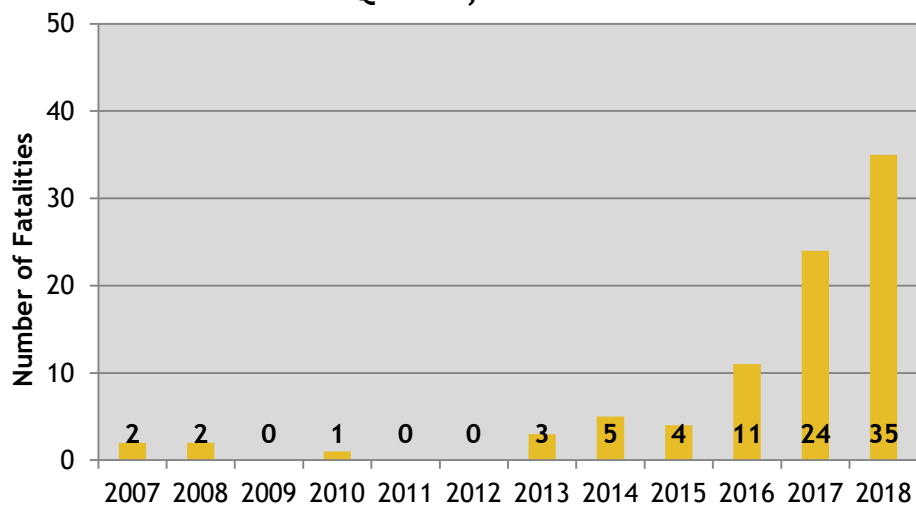
First Quarter, 2007-2018



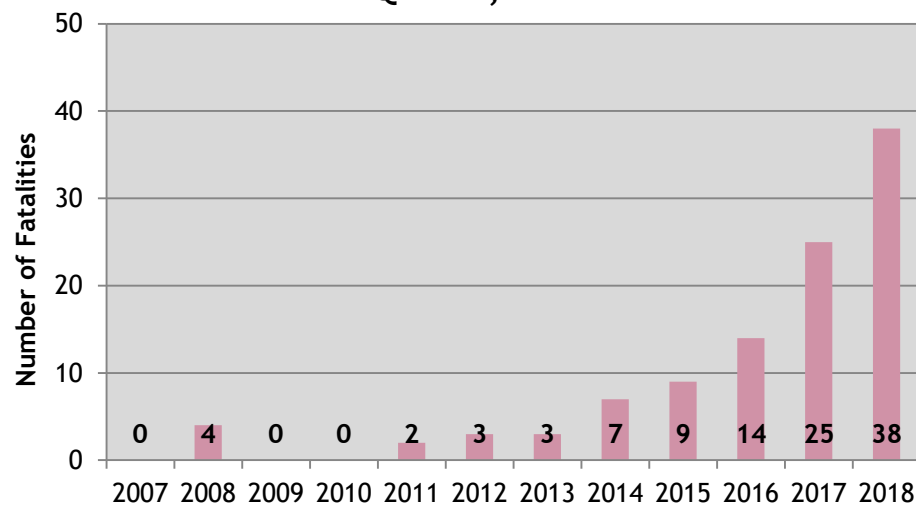
Second Quarter, 2007-2018



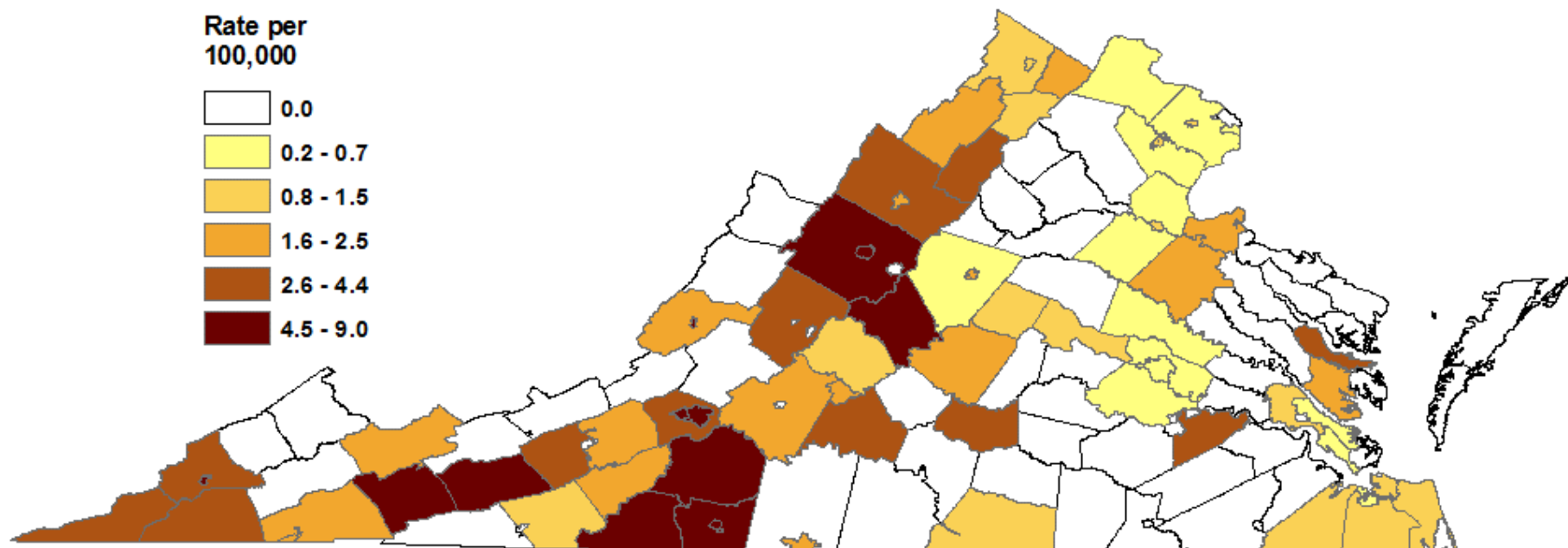
Third Quarter, 2007-2018



Fourth Quarter, 2007-2018



## Rate of Fatal Methamphetamine Overdoses by Locality of Overdose, 2016-2018

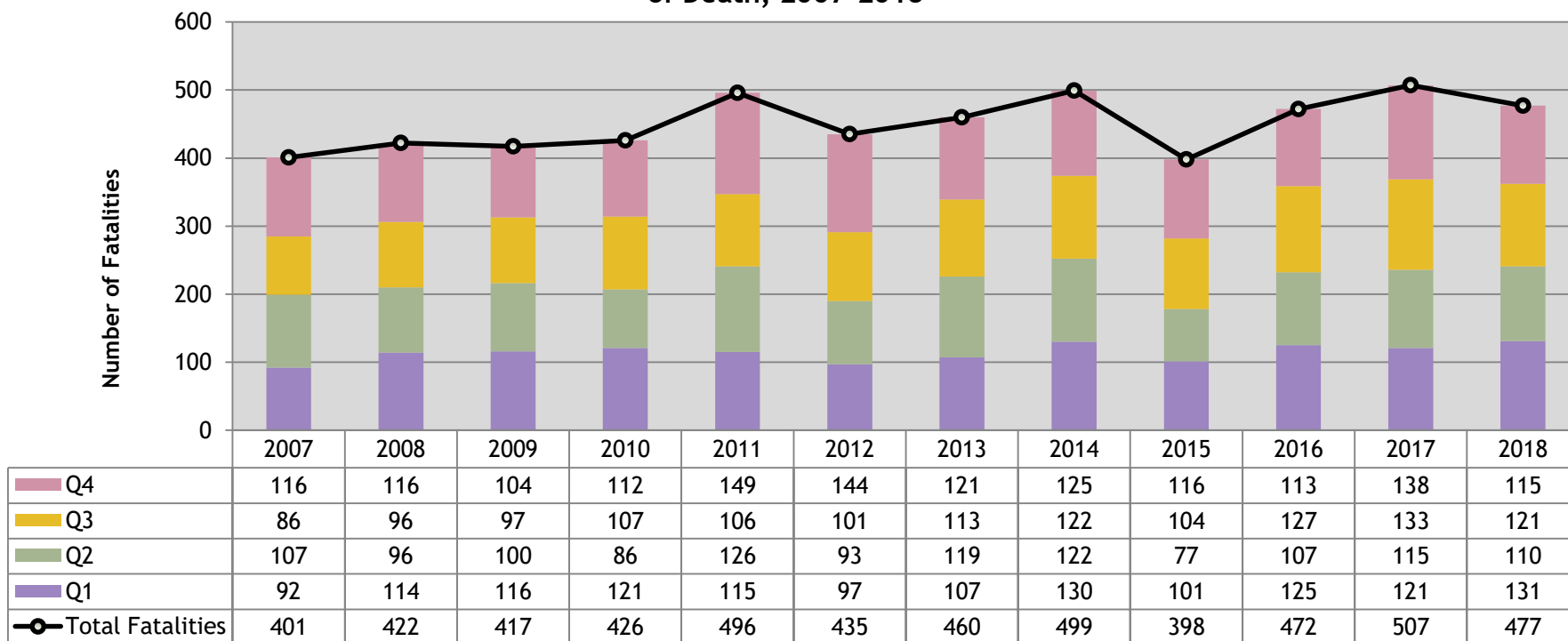


Source: Virginia Department of Health, Office of the Chief Medical Examiner

# PRESCRIPTION OPIOIDS (EXCLUDING FENTANYL)

Since 2007, fatal prescription (Rx) opioid overdoses have been the leading category of drugs causing or contributing to death in the Commonwealth, with historically, oxycodone being the most common drug. Given the transition in fatal fentanyl overdoses from pharmaceutically produced fentanyl (2007-2014) to nearly all illicitly produced fentanyl (2015-present), fentanyl needs to be removed from the Rx opioid category and analyzed separately. This allows one to see the significant impact the drug is having on fatal overdose numbers in Virginia. By removing fentanyl from this Rx category, it is to be expected that Rx opioid fatalities from 2007-2013 to be slightly undercounted because true Rx fentanyl overdoses are excluded and combined with all 'fentanyl' to capture recent trends of illicit fentanyl in Virginia.

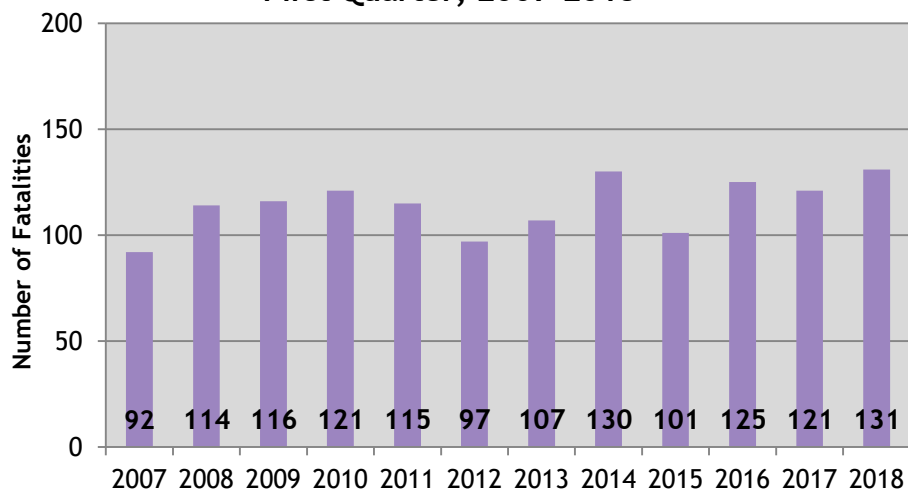
**Total Number of Fatal Prescription Opioid Overdoses (Excluding Fentanyl) by Quarter and Year of Death, 2007-2018**



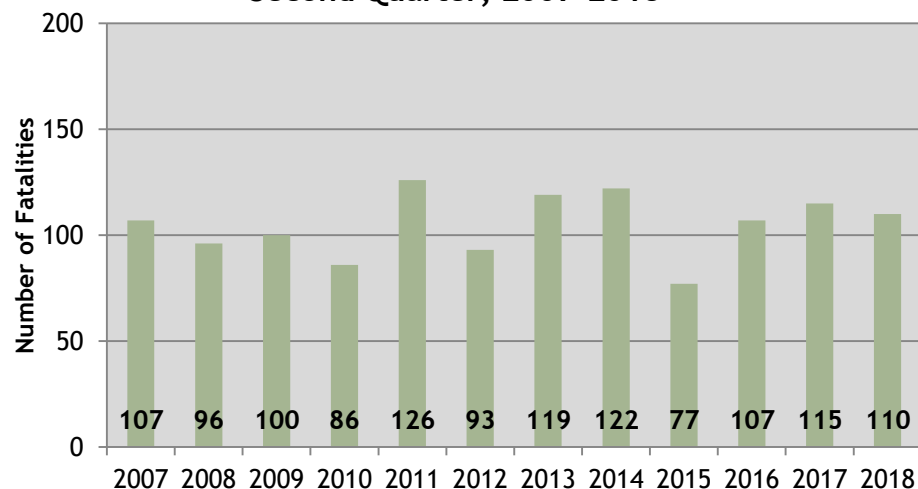
<sup>1</sup> 'Prescription Opioids (excluding fentanyl)' calculates all deaths in which one or more prescription opioids caused or contributed to death, but excludes fentanyl from the required list of prescription opioid drugs used to calculate the numbers. However, given that some of these deaths have multiple drugs on board, some deaths may have fentanyl in addition to other prescriptions opioids, and are therefore counted in the total number. Analysis must be done this way because by excluding all deaths in which fentanyl caused or contributed to death, the calculation would also exclude other prescription opioid deaths (oxycodone, methadone, etc.) from the analysis and would thereby undercount the actual number of fatalities due to these true prescription opioids.

# PRESCRIPTION OPIOIDS (EXCLUDING FENTANYL)

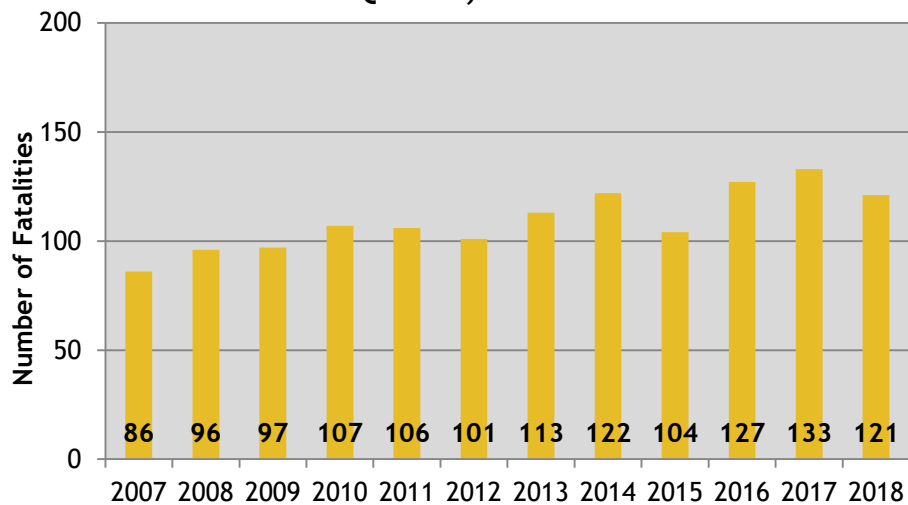
First Quarter, 2007-2018



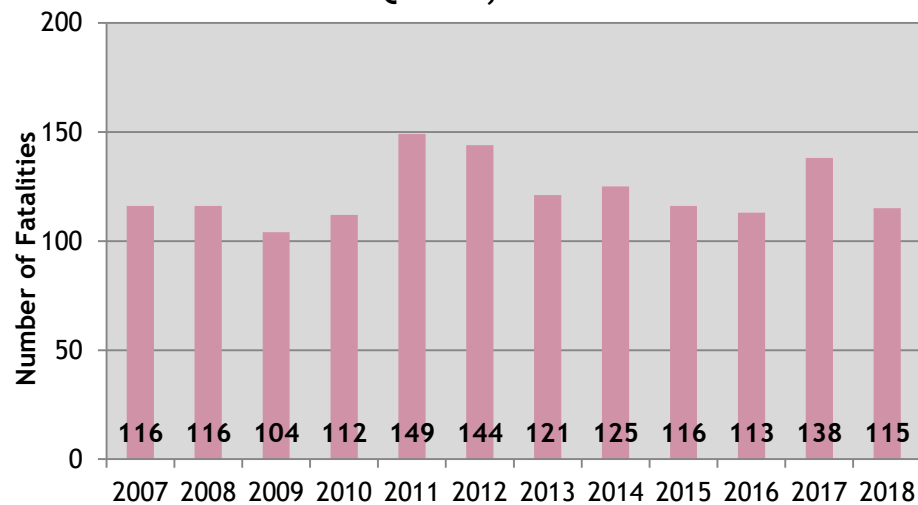
Second Quarter, 2007-2018



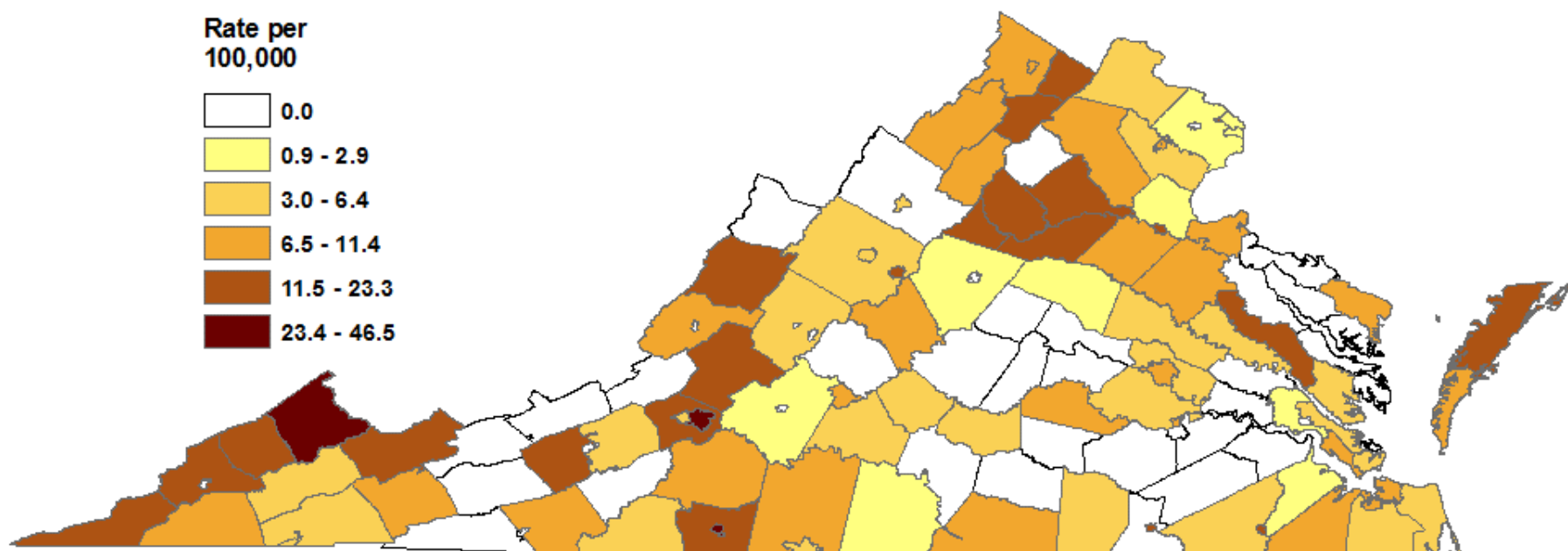
Third Quarter, 2007-2018



Fourth Quarter, 2007-2018



## Rate of Fatal Prescription Opioid (Excluding Fentanyl) Overdoses by Locality of Overdose, 2018



Source: Virginia Department of Health, Office of the Chief Medical Examiner

# FATAL DRUG OVERDOSES OF SPECIAL INTEREST

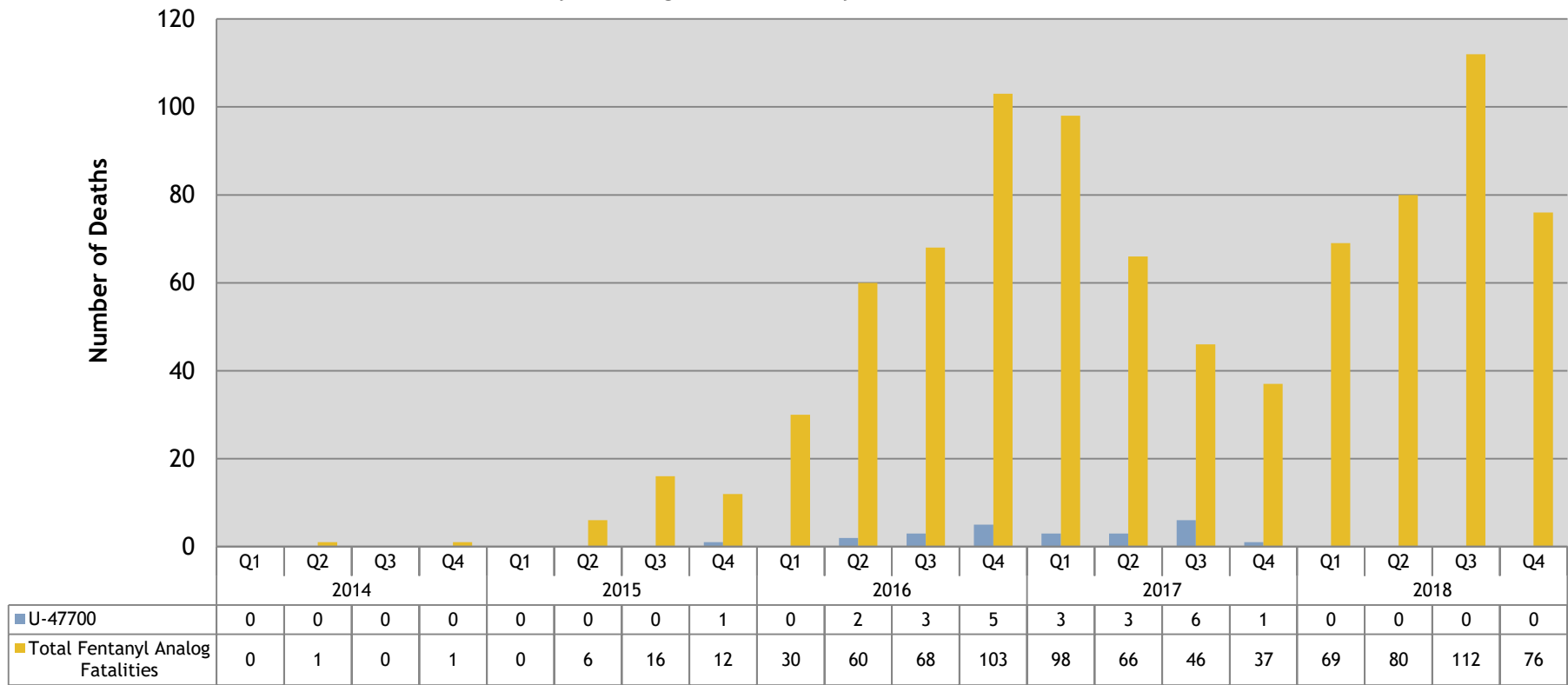


- Synthetic Opioids and Fentanyl Analogs
- All Opioids (Fentanyl, Heroin, and/or Prescription Opioids)
- Heroin and/or Fentanyl

# SYNTHETIC OPIOIDS AND FENTANYL ANALOGS

Synthetic opioids are a large group of chemically manufactured drugs typically used as narcotic analgesics (fentanyl, oxycodone, and methadone are examples of synthetic opioids), whereas opiates like heroin and morphine are made from opium poppy plants. Fentanyl analogs and U-47700, while different, are synthetic opioids that are made illegally. Novel synthetic opioids like fentanyl analogs and U-47700 need to be monitored because as state and federal efforts are continually being made to schedule novel drugs, drug traffickers are persistently trying to stay one step ahead of the law by synthesizing and introducing novel synthetic opioids into the drug market.

**Total Number of Fatal Fentanyl Analog Overdoses by Quarter and Year of Death, 2014-2018**



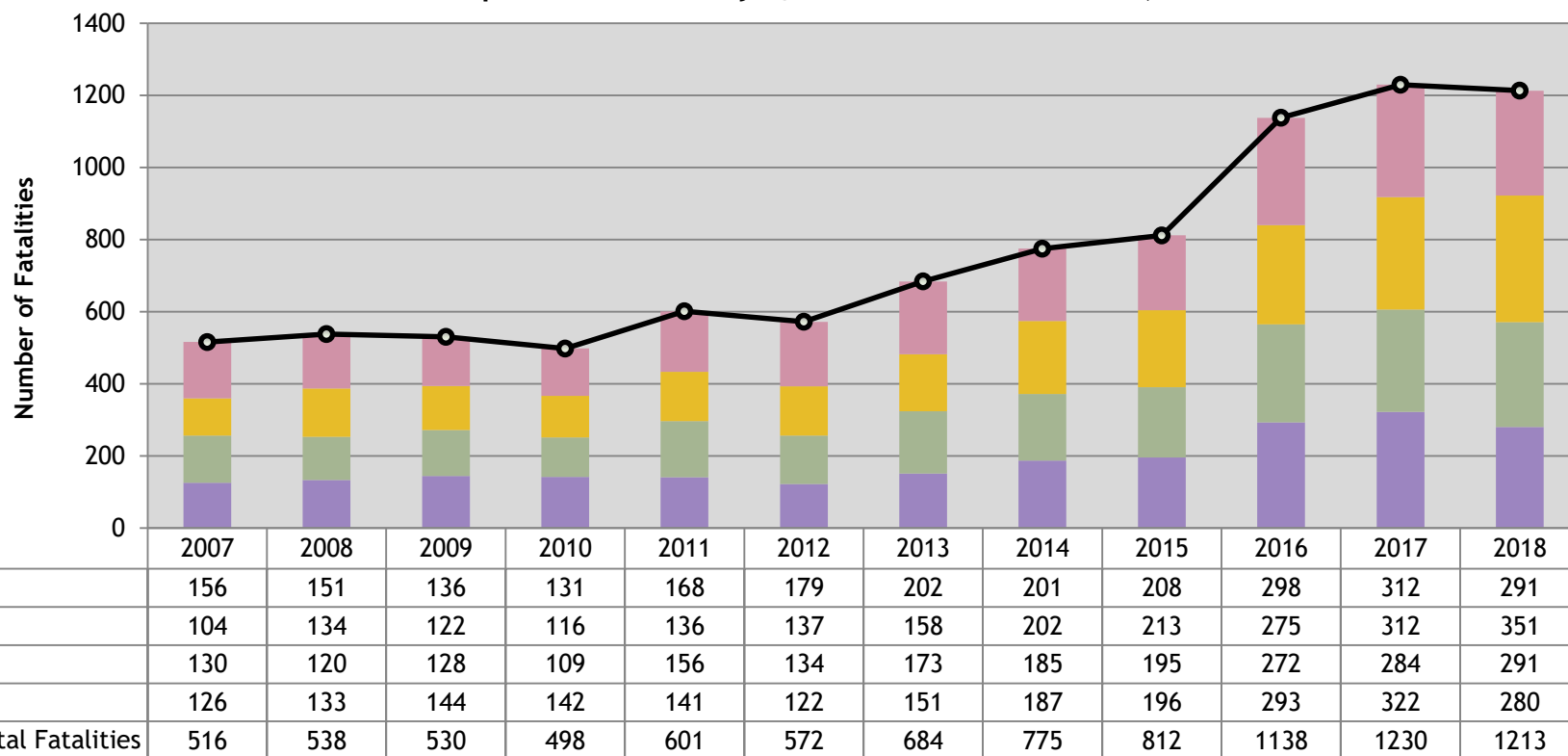
<sup>1</sup> Each fentanyl analog is tallied by each time it caused or contributed to death (analyzed from either toxicology or the cause of death statement) and therefore the total number of analogs will far exceed the actual number of fatalities



# ALL OPIOIDS

From 2007-2015, opioids (fentanyl, heroin, U-47700, and/or one or more prescription opioids) made up approximately 75% of all fatal drug overdoses annually in Virginia. However, this percentage is increasing each year due to the significant increase in fatal fentanyl and/or heroin overdoses which began in late 2013 and early 2014. In 2018, 81.7% of all fatal overdoses were due to one or more opioids. For the first time since 2012, all fatal opioid overdoses actually decreased from the previous year (1.4% decrease in 2018 compared to 2017).

**Total Number of Fatal Opioid Overdoses by Quarter and Year of Death, 2007-2018**



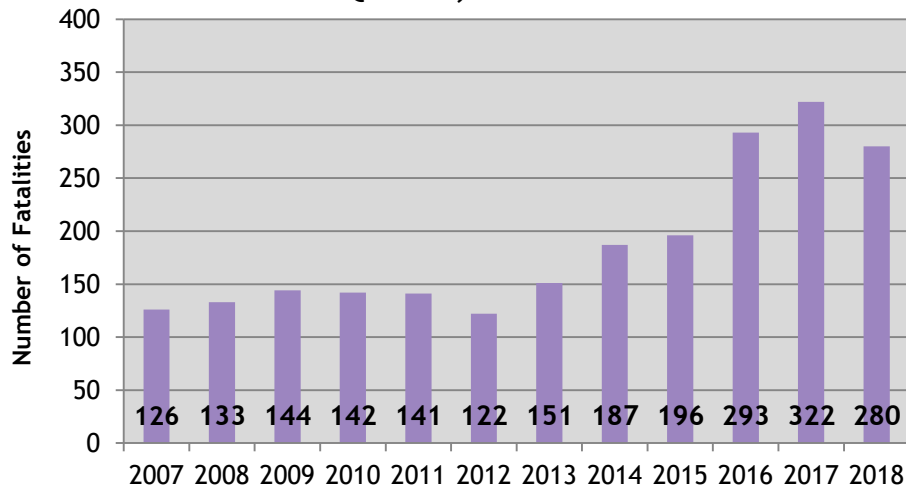
<sup>1</sup> 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, U-47700, and opioids unspecified

<sup>2</sup> 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

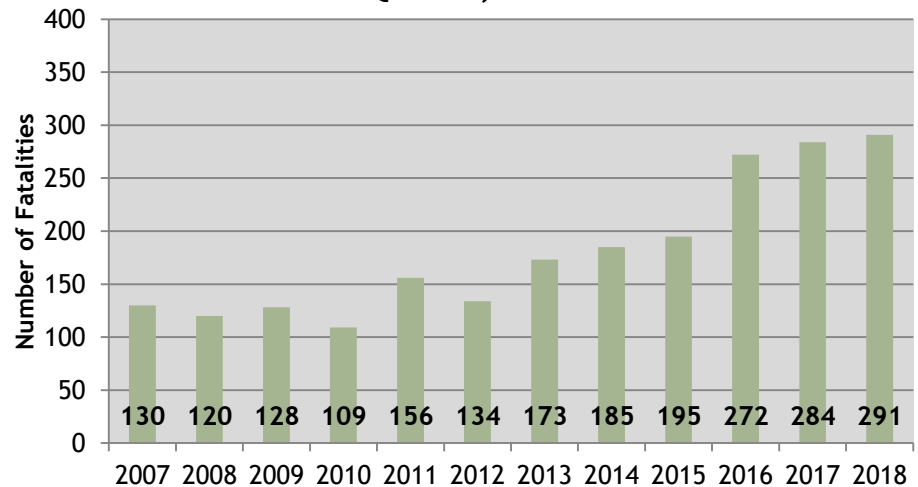
<sup>3</sup> Fatal opioid numbers have changed slightly from past reports due to the removal of fentanyl from the category of prescription opioids, as well as the addition of buprenorphine, levorphanol, meperidine, pentazocine, propoxyphene, and tapentadol added to the list of prescription opioids.

# ALL OPIOIDS

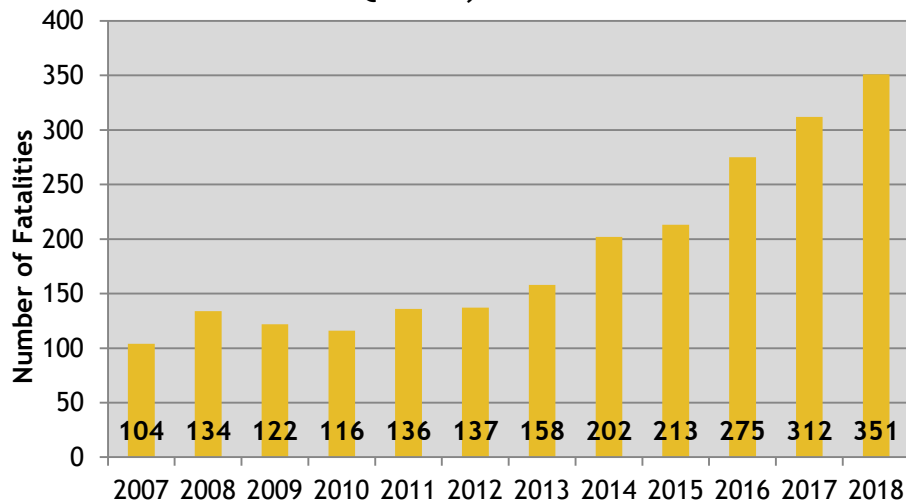
First Quarter, 2007-2018



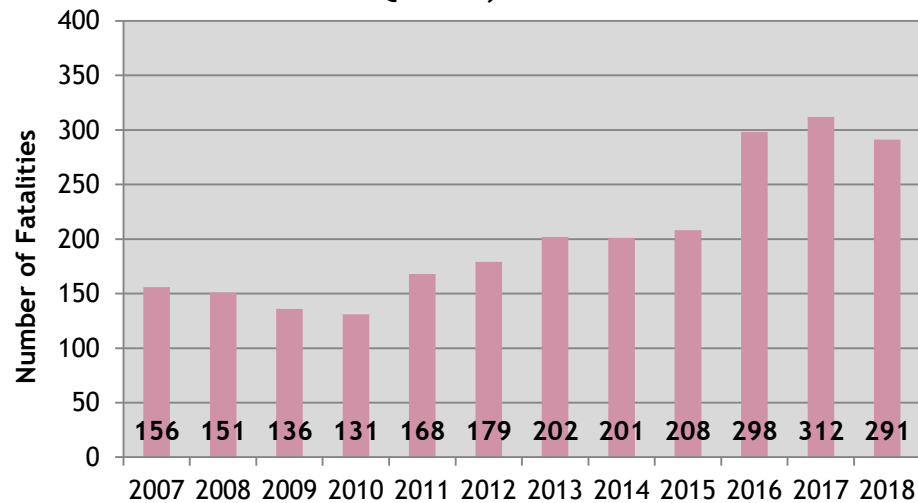
Second Quarter, 2007-2018



Third Quarter, 2007-2018



Fourth Quarter, 2007-2018

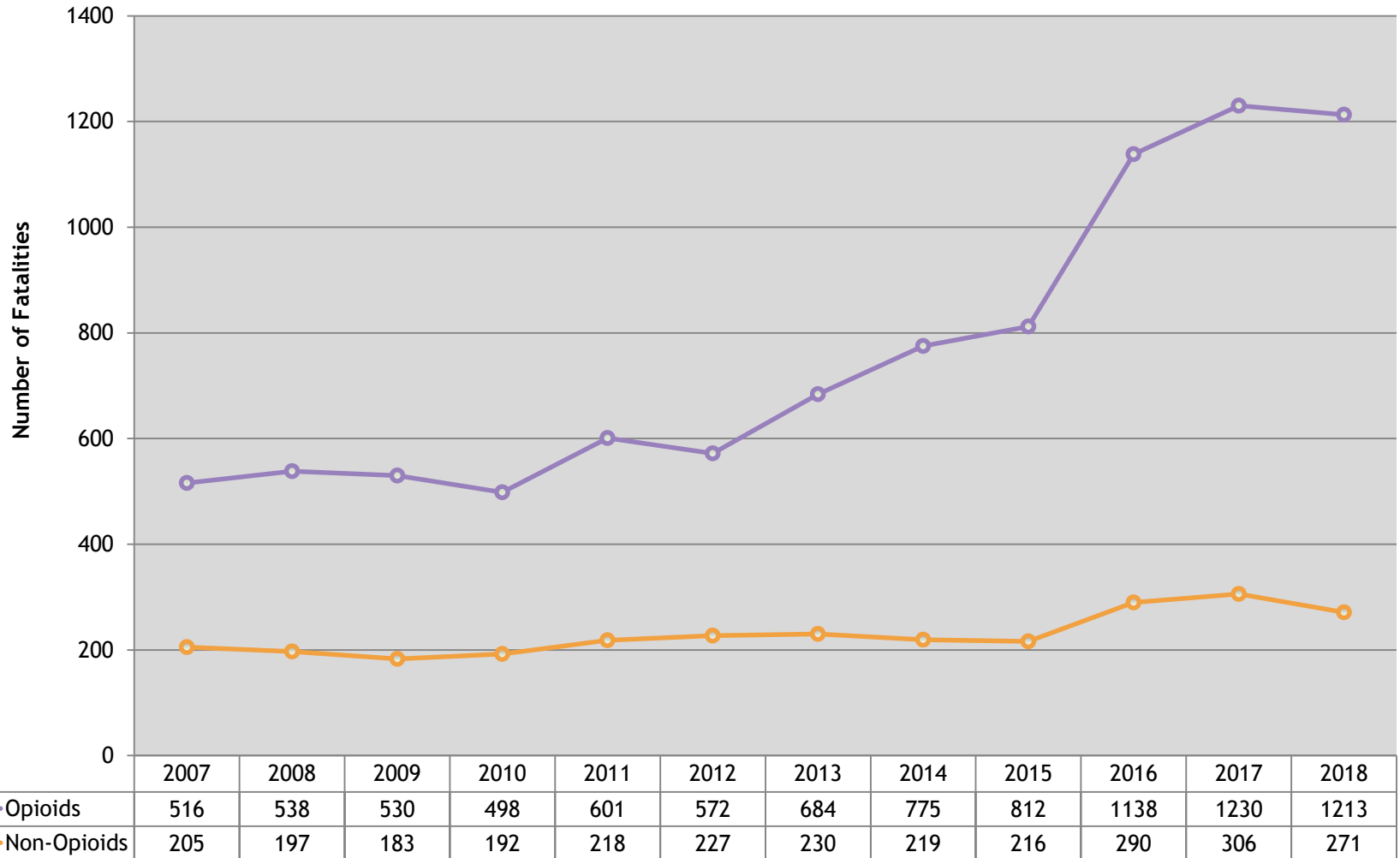


<sup>1</sup> 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, U-47700, and opioids unspecified

<sup>2</sup> 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

# OPIOIDS VS. NON-OPIOIDS

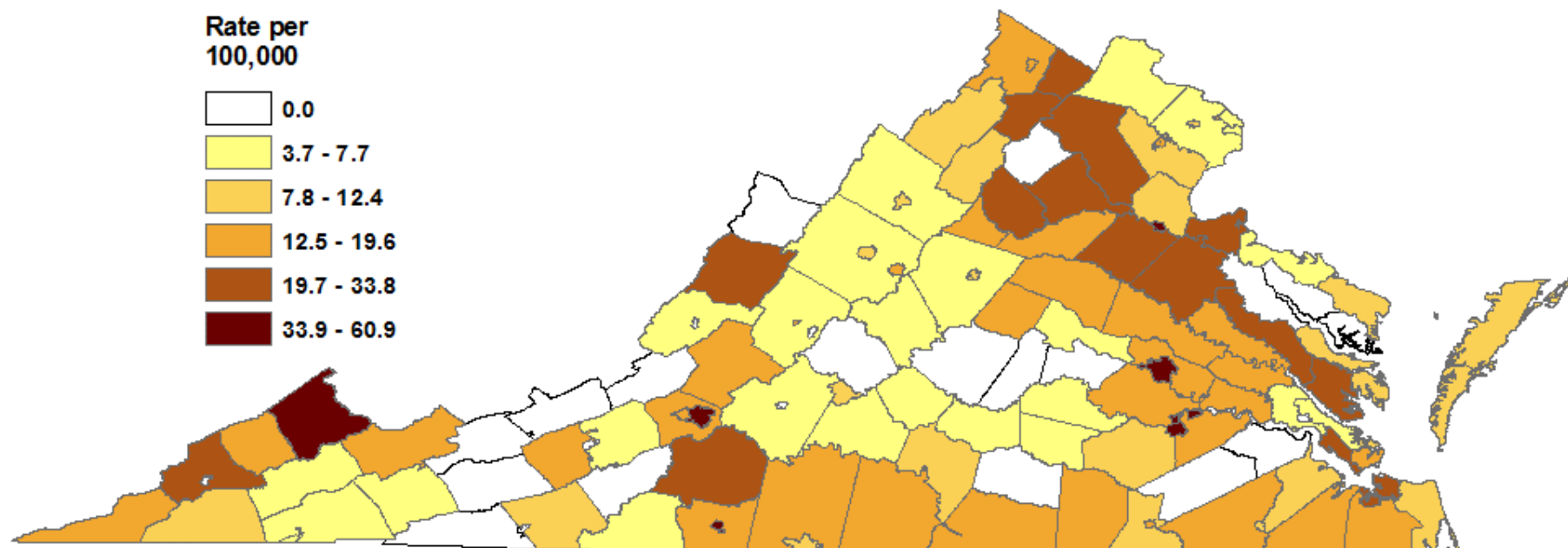
Total Number of Fatal Opioid Overdoses vs. Non-Opioid Overdoses by Year of Death, 2007-2018



<sup>1</sup> 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, U-47700, and opioids unspecified

<sup>2</sup> 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

## Rate of All Fatal Opioid Overdoses by Locality of Overdose, 2018

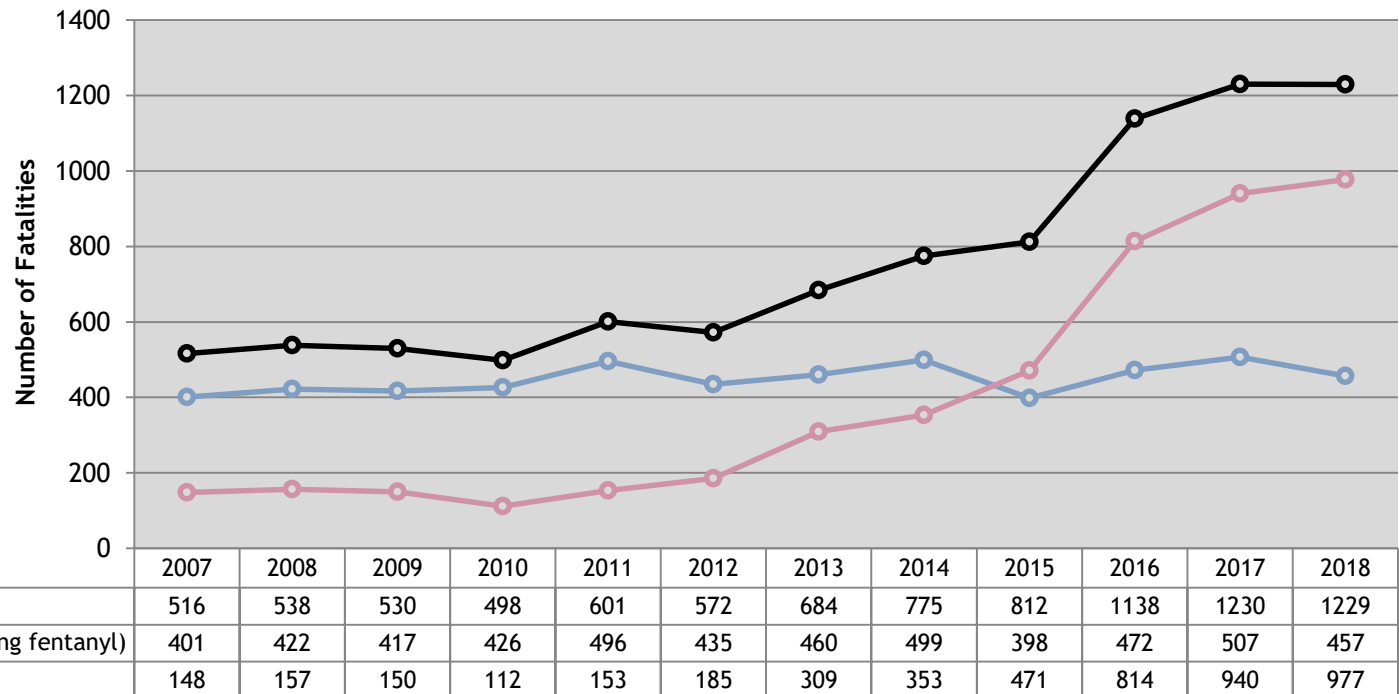


Source: Virginia Department of Health, Office of the Chief Medical Examiner

# OPIOIDS- A DIFFERENT PERSPECTIVE

Prescription opioids are a group of drugs that are commercially made by pharmaceutical companies in certified laboratories that act upon the opioid receptors in the brain. Historically, fentanyl has been one of these drugs. However, in late 2013, early 2014, illicitly made fentanyl began showing up in Virginia and by 2016, most fatal fentanyl overdoses were of illicit production of the drug. Separating fentanyl from the grouping of prescription opioids for this reason demonstrates a slight decrease in fatal prescription opioid overdoses in 2015 and a dramatic increase in the number of fatal fentanyl and/or heroin overdoses. This has caused the significant rise in all fatal opioid overdoses in the Commonwealth since 2012.

**Total Number of Prescription Opioid (Excluding Fentanyl), Fentanyl and/or Heroin, and All Opioid Overdoses by Year of Death, 2007-2018**



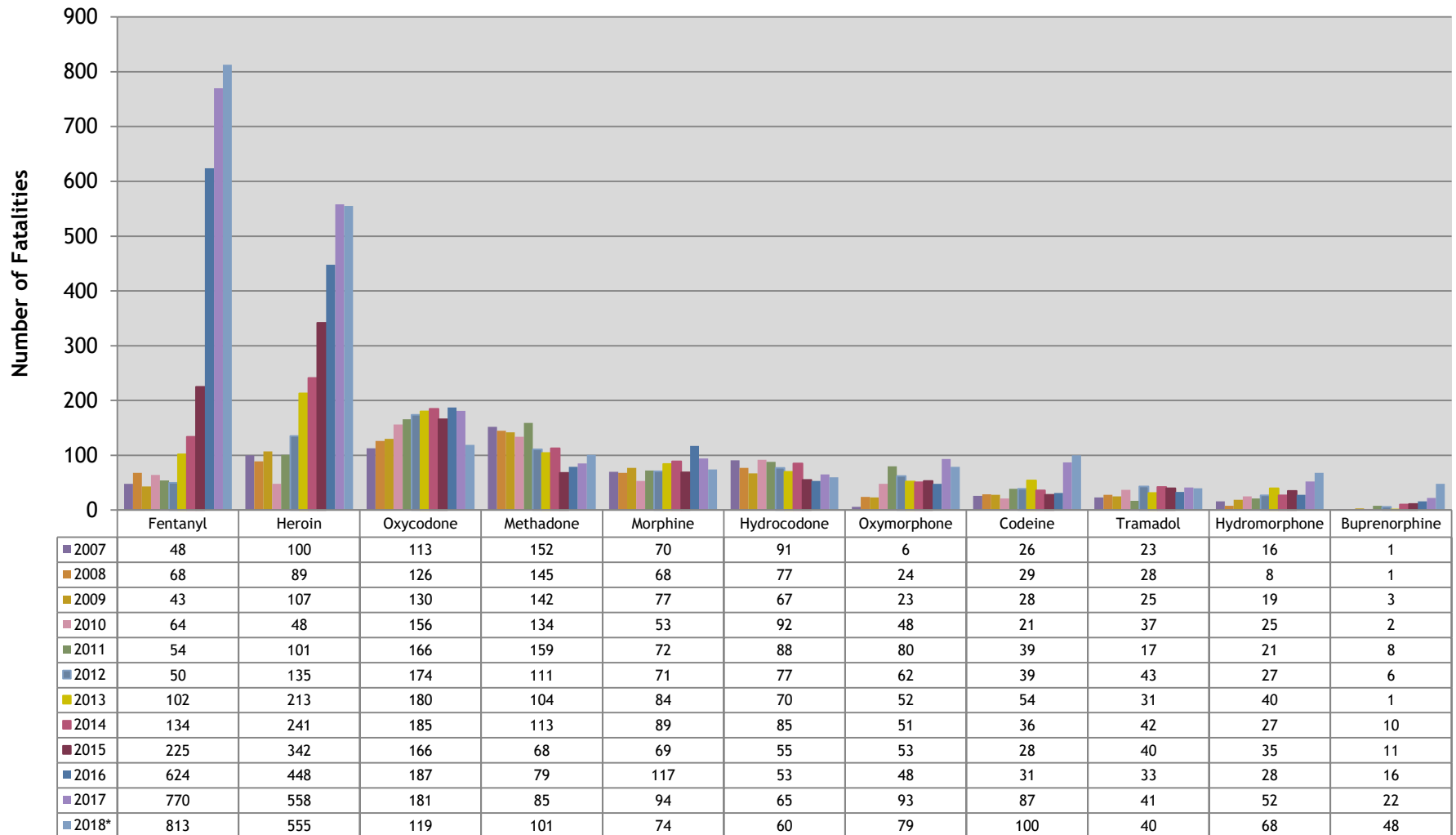
<sup>1</sup> 'All Opioids' include all versions of fentanyl, heroin, prescription opioids, and opioids unspecified

<sup>2</sup> Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

<sup>3</sup> 'Prescription Opioids (excluding fentanyl)' calculates all deaths in which one or more prescription opioids caused or contributed to death, but excludes fentanyl from the required list of prescription opioid drugs used to calculate the numbers. However, given that some of these deaths have multiple drugs on board, some deaths may have fentanyl in addition to other prescriptions opioids, and are therefore counted in the total number. Analysis must be done this way because by excluding all deaths in which fentanyl caused or contributed to death, the calculation would also exclude other prescription opioid deaths (oxycodone, methadone, etc.) from the analysis and would thereby undercount the actual number of fatalities due to these true prescription opioids.

# ALL OPIOIDS

Total Number of Fatal Opioid Overdoses by Drug Name and Year of Death, 2007-2018



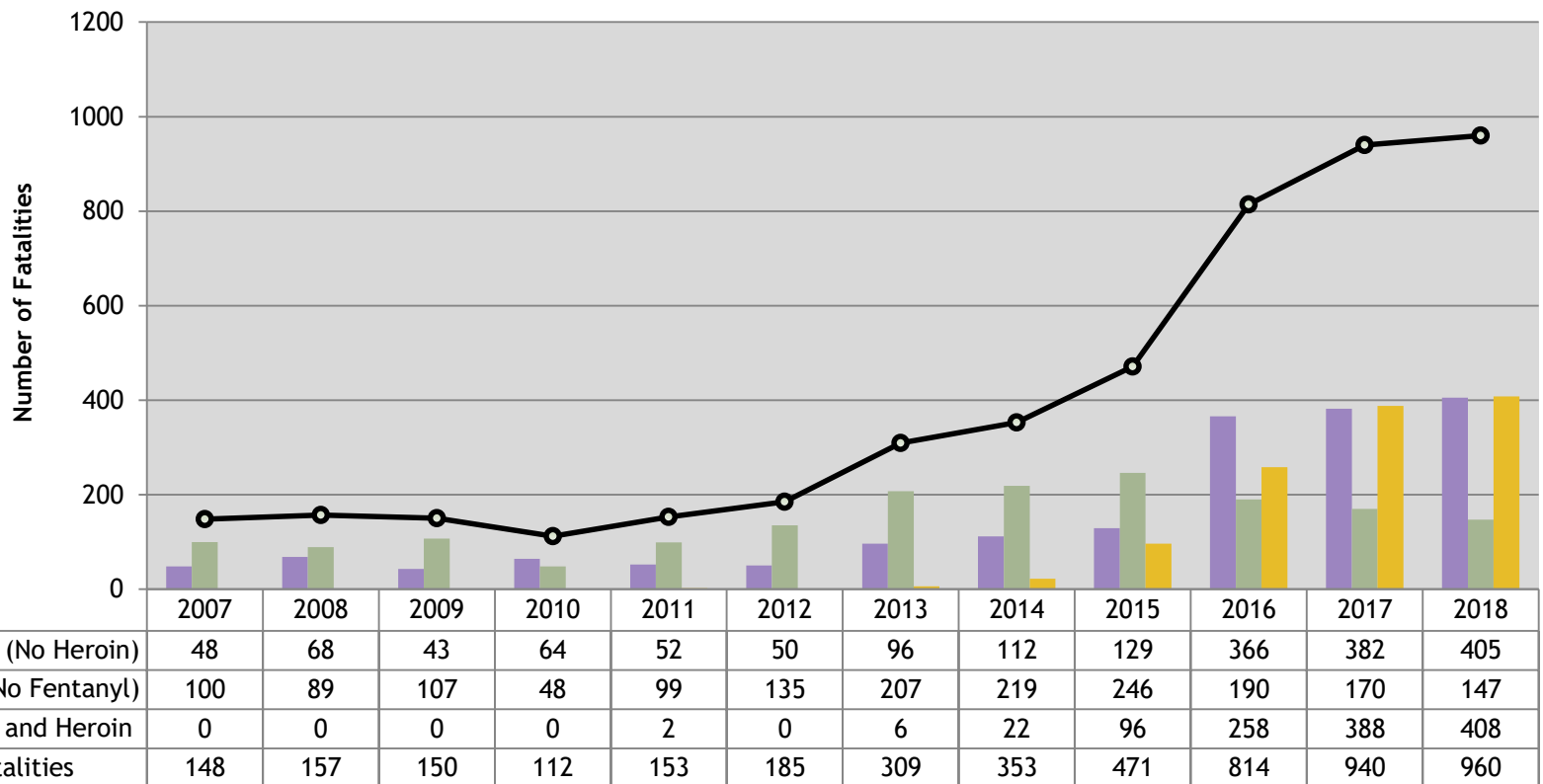
<sup>1</sup> Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

<sup>2</sup> Levorphanol, meperidine, pentazocine, propoxyphene, and tapentadol were excluded from this analysis due low annual case counts (<20 deaths)

# FENTANYL AND/OR HEROIN

The total number of fatal fentanyl and/or heroin overdoses have significantly increased since late 2012. It is important to look at these two drugs together because as heroin became more popular in 2010, fentanyl occasionally began showing up as an additive to the heroin. By late 2013 and early 2014, some heroin being sold on the street was actually completely fentanyl, unbeknownst to the user. It is essential to look at these fentanyl (no heroin), heroin (no fentanyl), and fentanyl and heroin combination deaths together because users never know exactly what is in the illegal drugs purchased off the streets. Fatal fentanyl and/or heroin overdoses increased slightly in 2018 compared to 2017 (2.1%).

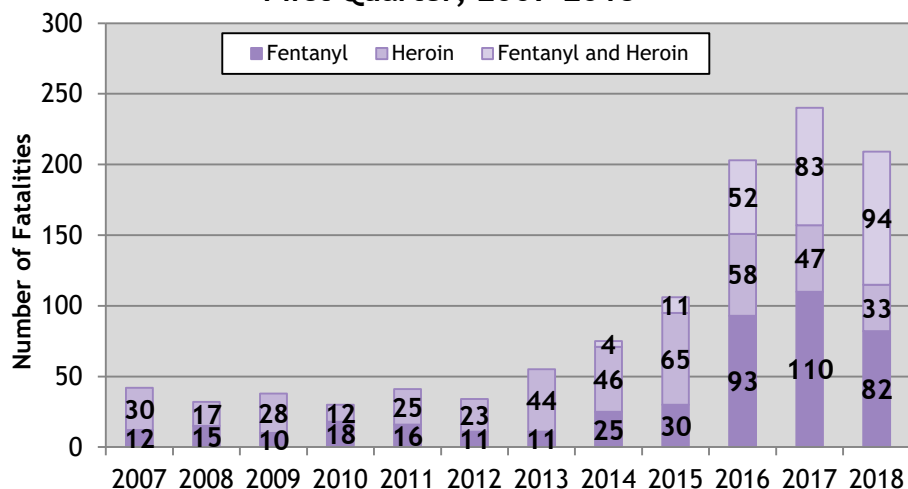
**Total Number of Fatal Fentanyl and/or Heroin Overdoses by Year of Death, 2007-2018**



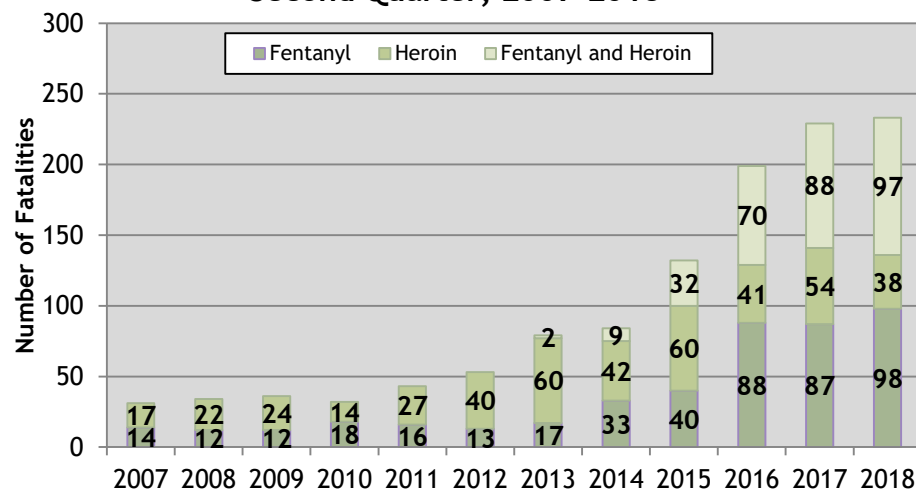
<sup>1</sup> Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

# FENTANYL AND/OR HEROIN

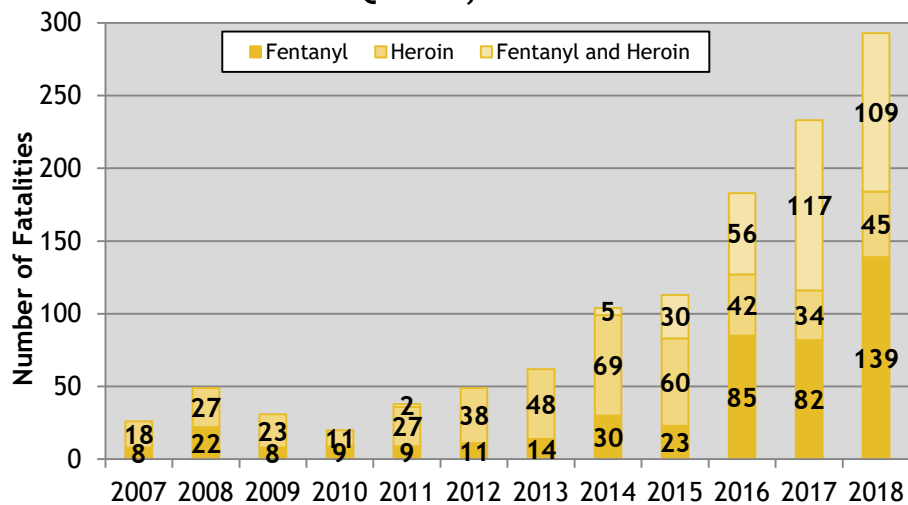
## First Quarter, 2007-2018



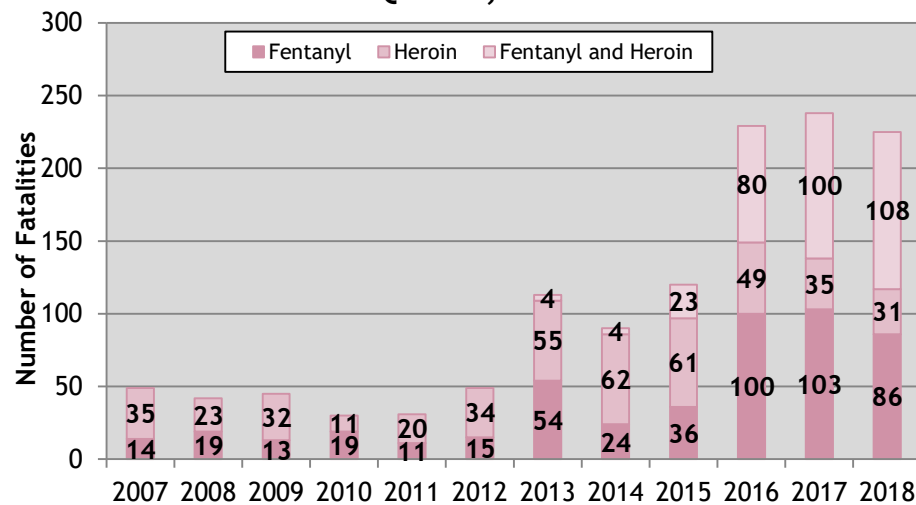
## Second Quarter, 2007-2018



## Third Quarter, 2007-2018



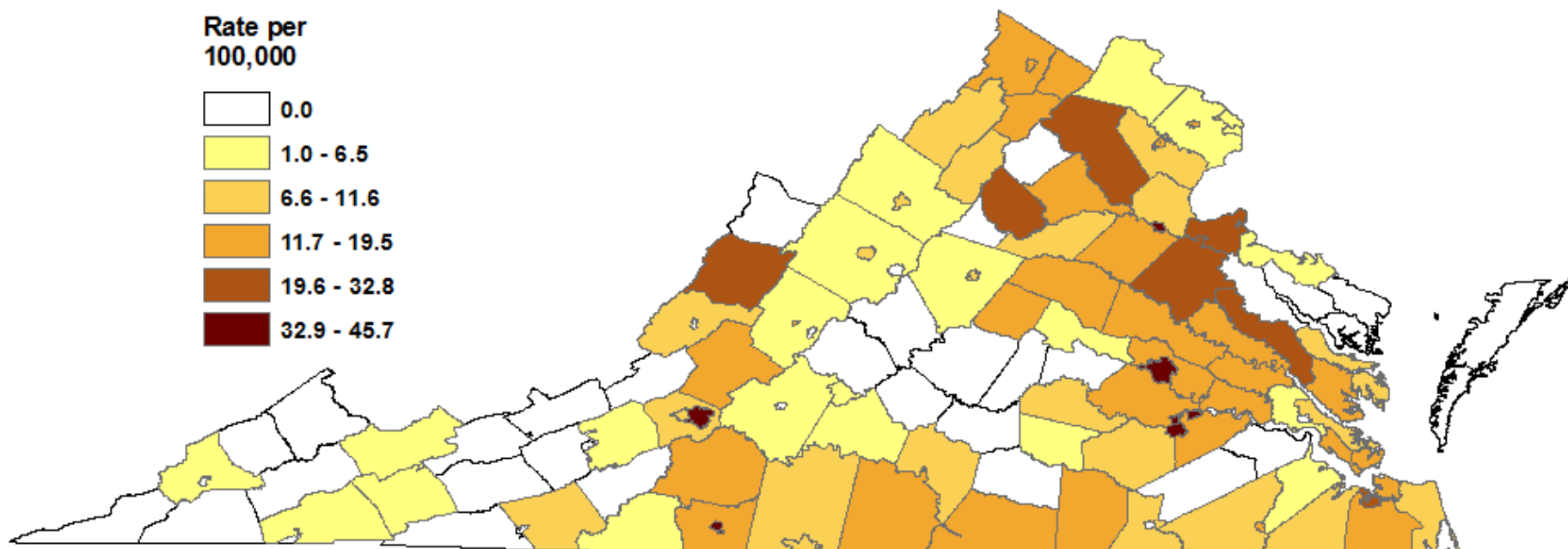
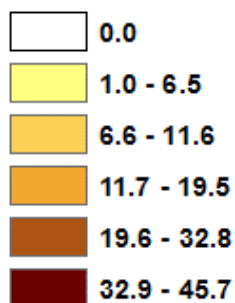
## Fourth Quarter, 2007-2018





## Rate of Fatal Fentanyl (Rx, Illicit, or Analogs) and/or Heroin Overdoses by Locality of Overdose, 2018

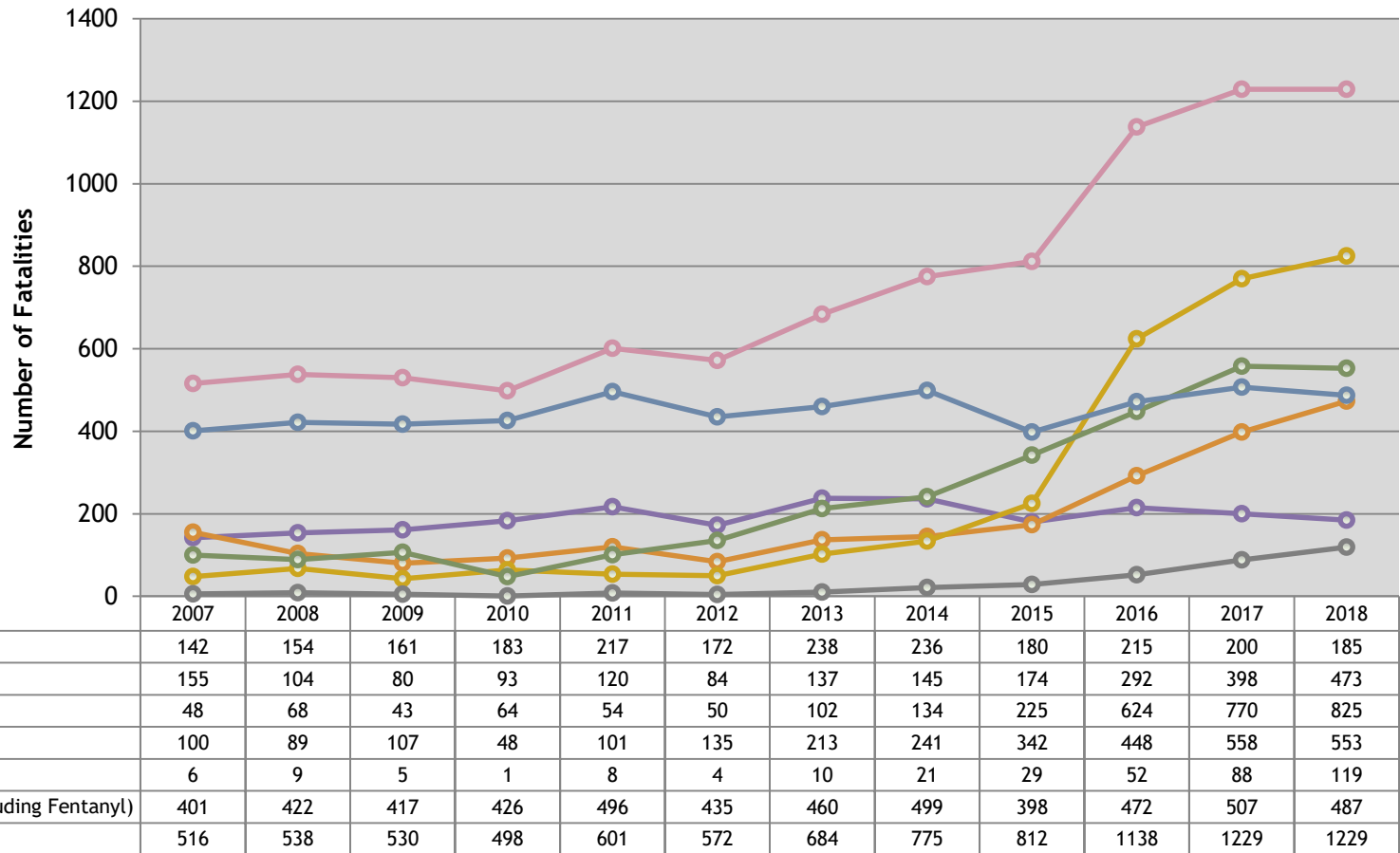
Rate per  
100,000



Source: Virginia Department of Health, Office of the Chief Medical Examiner

# ALL DRUGS

Total Number of Fatal Drug Overdoses Drug Name/Category and Year of Death, 2007-2018



<sup>1</sup> Deaths may be represented in more than one category due to groupings of drug categories (e.g. heroin)

<sup>2</sup> 'All Opioids' includes all versions of fentanyl, heroin, prescription opioids, U-47700, and opioids unspecified

<sup>3</sup> 'Opioids Unspecified' are a small category of deaths in which the determination of heroin and/or one or more prescription opioids cannot be made due to specific circumstances of the death. Most commonly, these circumstances are a result of death several days after an overdose, in which the OCME cannot test for toxicology because the substances have been metabolized out of the decedent's system.

<sup>4</sup> Historically, fentanyl has been categorized as a prescription opioid because it is mass produced by pharmaceutical companies. However, recent law enforcement investigations and toxicology results have demonstrated that several recent fentanyl seizures have not been pharmaceutically produced, but illicitly produced. This illicit form of fentanyl is produced by international drug traffickers who import the drug into the United States and often, mix it into heroin being sold. This illicitly produced fentanyl has been the biggest contributor to the significant increase in the number of fatal opioid overdoses in Virginia.

<sup>5</sup> Illicit and pharmaceutically produced fatal fentanyl overdoses are represented in this analysis. This includes all different types of fentanyl analogs (acetyl fentanyl, furanyl fentanyl, etc.)

# CONTACT INFORMATION

This report is compiled by the Virginia Department of Health, Office of the Chief Medical Examiner. For additional information regarding these or other statistics, please contact:

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*Virginia Department of Health*

*Office of the Chief Medical Examiner*

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*<http://www.vdh.state.va.us/medexam/>*